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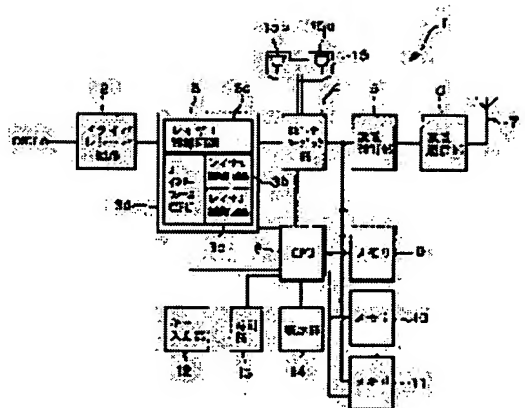
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(54) AUTOMATIC ANSWERING TELEPHONE SET

(57)Abstract:

PURPOSE: To provide an automatic answering function for each slave unit in a master slave unit in extension telephone sets provided with the automatic answering function.

CONSTITUTION: When absence mode setting information and slave unit sub address information radio transmitted from the slave unit are received, a CPU 8 registers the received information inside a memory 10 as absence information for the respective slave units and realizes the automatic answering function for the plural slave units by managing the absence information. When the slave unit whose absence is registered is present and an incoming call is present, the CPU 8 detects the sub address information, refers to absence registration information registered in the memory 10, and at the time of coincidence with a slave unit sub address in absence registration, outputs a call setting request to an I interface control part 3. Then, a speech path is established, an absence response message stored in the memory 10 beforehand is read and outputted to the I interface control part 3, a call side is informed of the effect of absence and when message voice signals are received, they are stored in a storage area set inside the



memory 9 for the respective sub addresses of the respective slave units.

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CLAIMS

[Claim(s)]

[Claim 1] The cordless handset which delivers and receives a communications control signal, and ** and a receiver signal by transmission and reception between main phones, and talks over the telephone between external telephones through a main phone, While connecting with a circuit and transmitting and receiving a communications control signal, and ** and a receiver signal between external telephone and a cordless handset through this circuit the answering machine machine equipped with the main phone which memorizes the receiver signal received from external telephone during absence by the telephone answering function -- setting -- the above -- a cordless handset a self cordless handset -- with an information setting means to set up the information on a purport that transmission of the receipt information which the main phone memorized is required, during a storage means to memorize identification information, the information on a purport that self it is out, and the above-mentioned absence the self cordless handset which memorized each information set up by this information setting means for the above-mentioned storage means, when transmission of the receipt information under absence is required with a transmitting means to transmit to the above-mentioned main phone with identification information, and this transmitting means A playback means to reproduce the receiver signal transmitted from the above-mentioned main phone is provided. The above-mentioned main phone the above -- a cordless handset -- identification information -- corresponding -- a cordless handset -- with a receipt information storage means to set the storage region which memorizes receipt information as according to the above -- the information on the purport which is during the absence by which setting transmission is carried out from a cordless handset, and a cordless handset, if identification information is received the storage region of the cordless handset concerned set as a receipt information storage means by this receipt information in the cordless handset under absence -- registering -- the call in from external telephone -- facing -- a cordless handset, if identification information is received The control means which memorizes a receiver signal to the storage region of the cordless handset concerned which identifies a cordless handset by this receipt information that carried out absence registration, and is set as a receipt information storage means, the above -- the Request-to-Send information on the receipt information under absence by which setting transmission is carried out from a cordless handset, and a cordless handset, if identification information is received The answering machine machine characterized by providing a transmitting means to identify a cordless handset by the receipt information which carried out [above-mentioned] absence registration, to read a receiver signal from the storage region of the cordless handset of a receipt information storage means concerned, and to transmit to the cordless handset concerned.

[Claim 2] A means is established. the cordless handset in which the above-mentioned main phone carried out [above-mentioned] ruble registration -- counting which carries out counting of the count of arrival of the mail from external telephone to according to -- the above-mentioned control means The count information of arrival of the mail on an exception is memorized to the storage region of the cordless handset concerned set as the above-mentioned receipt information storage means with the above-mentioned receiver signal. this counting -- the cordless handset by which counting is carried out with a means -- the above-mentioned transmitting means the time of transmitting a receiver signal -- the count information of arrival of the mail on the cordless handset concerned -- adding -- a radio signal -- a cordless handset -- transmitting -- the above -- the answering machine

machine according to claim 1 characterized by a cordless handset establishing a notice means to notify the count information of arrival of the mail transmitted with a receiver signal from this main phone.

[Claim 3] While connecting with a circuit and transmitting and receiving a communications control signal, and ** and a receiver signal between external telephone and a cordless handset through this circuit The main phone which memorizes the receiver signal received from external telephone during absence by the telephone answering function, In the answering machine machine equipped with the cordless handset which delivers and receives a communications control signal, and ** and a receiver signal by transmission and reception between main phones, and talks over the telephone between external telephones through a main phone the above-mentioned main phone the response message which answers at the time of the arrival from the telephone of the above-mentioned exterior under absence -- the above -- a cordless handset -- with a response indication storage means to memorize to according to the above -- a cordless handset -- with a receipt information storage means to set the storage region which memorizes receipt information as according to According to assignment information, arrival of the mail is notified to the specifier machine concerned. the cordless handset transmitted on the occasion of the arrival from the telephone of the above-mentioned exterior -- When there is no response from the specifier machine to the notice of arrival of the mail concerned, external telephone is answered by the response message of the specifier machine concerned memorized by said response indication storage means. The control means which memorizes the message which notified the purport whose specifier machine concerned is absence, and received from external telephone to the storage region of the cordless handset concerned set as said receipt information storage means, a transmitting means to transmit the received message memorized during absence by this control means to the specifier machine concerned -- providing -- the above -- a cordless handset The answering machine machine characterized by providing a receiving means to receive the received message under absence transmitted from the above-mentioned main phone, and a playback means to reproduce the received message which received with this receiving means.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the answering machine machine which has two or more cordless handsets, and relates to the answering machine machine which has a telephone answering function for every cordless handset in a detail.

[0002]

[Description of the Prior Art] Many cordless telephone machines equipped with the main phone and the cordless handset have spread recently. A cordless telephone machine with the main phone which has the function which is transmitted and received, and which changes into a predetermined radio signal the message signal which connects to a public line network, and is delivered and received with external telephone, and comes out of Since it has the cordless handset which transmits and receives a message signal and can talk to predetermined distance detached building ***** over the telephone freely from a main phone between main phones, it has two or more cordless handsets to one main phone, and each one of families make the message cordless and possible with the cordless handset in each room.

[0003] Moreover, if many things equipped with the telephone answering function by the main phone side have spread and a call in occurs from a line wire during absence, a predetermined message is transmitted to a call origination side, and he notifies the purport of absence, and the purport which records a message, and is trying to memorize the contents of a message. There are a function in which a main phone shifts to a telephone answering function automatically when there is no response (off-hook actuation of a user) between specific time amount to the arrival to a circuit as a telephone answering function which this main phone has, a function in which a transmitting person makes timed recording perform according to an individual using a personal identification number during the after [starting] response of that telephone answering function, etc.

[0004] There are an analog cordless telephones system and a digital cordless telephones system as such a cordless telephone machine. Indoor use is usually offered, and an analog cordless telephones system establishes a link with an indoor main phone and an indoor cordless handset, and makes a communication link possible.

[0005] On the other hand, what is called a digital cordless telephones system and the so-called PHP (Personal Handy Phone) as one of the systems which enabled use on indoor and the outdoors is considered. As this system feature, it is mentioned that a personal digital assistant (cordless handset) can use it on indoor (domestic or inside of a place of business) or the outdoors. When a personal digital assistant is indoors, this system establishes an outdoor base station and an outdoor link, and the communication link of it is attained.

[0006] Namely, in a control channel, a personal digital assistant recognizes whether a base station and a link are establishable with the signal (slot for control) periodically transmitted from a base station (indoor and outdoors) (it checks whether a LCCH super frame is establishable), and if a base station and this link are establishable, it will be in a base station and the condition which can be communicated. Moreover, in a PHP system, by migration of a personal digital assistant, it separates from the communication link within the circle of a certain base station, and supposing it becomes impossible to establish a link with the base station and a migration place is communication link within the circle [of another base station], in order to establish the another base station and another

link, location registration processing can be performed to another base station. Thereby, if a migration place is communication link within the circle [of another base station] even if a personal digital assistant moves to the communication link outside of the circle of a certain base station, it is the system which can establish the link between the base station.

[0007] Moreover, the migration machine used in a PHP system is available also as a cordless handset of the main phone of the cordless telephone machine equipped with the above-mentioned conventional telephone answering function.

[0008]

[Problem(s) to be Solved by the Invention] However, if it is in the cordless telephone machine equipped with such a conventional telephone answering function the case where a main phone has two or more cordless handsets -- each -- the memory for housesitting corresponding to a cordless handset, since there is nothing, it bundles up in the memory of a main phone and it memorizes even if the call in which specified the cordless handset occurs -- the cordless handset -- since neither call-in information nor message voice was memorized according to, the user using a domestic and multiple cordless handset had the trouble that could distinguish the message transmitted to individually-addressed and it could not be heard.

[0009] Such a problem is a problem produced also in the extension phone machine to which the main phone and the cordless handset are connected with the cable.

[0010] Moreover, when the migration machine used in a PHP system is used as a cordless handset of the main phone of the cordless telephone machine equipped with the conventional telephone answering function, Although the situation that the telephone answering function by the conventional main phone is started automatically is expected since it cannot answer even if the cordless handset as the migration machine is carried out to the outdoors, and the call in to the cordless handset concerned occurs, when absent the conventional memory for housesitting -- a cordless handset -- since neither call-in information nor message voice is memorized according to, it is clear that the problem that can distinguish the message transmitted to the cordless handset as a migration machine, and it cannot be heard occurs.

[0011] The technical problem of this invention is giving a telephone answering function for every cordless handset in the answering machine machine which has two or more cordless handsets.

[0012]

[Means for Solving the Problem] The cordless handset which invention according to claim 1 delivers and receives a communications control signal, and ** and a receiver signal by transmission and reception between main phones, and talks over the telephone between external telephones through a main phone, While connecting with a circuit and transmitting and receiving a communications control signal, and ** and a receiver signal between external telephone and a cordless handset through this circuit the answering machine machine equipped with the main phone which memorizes the receiver signal received from external telephone during absence by the telephone answering function -- setting -- the above -- a cordless handset a self cordless handset -- with an information setting means to set up the information on a purport that transmission of the receipt information which the main phone memorized is required, during a storage means to memorize identification information, the information on a purport that self it is out, and the above-mentioned absence the self cordless handset which memorized each information set up by this information setting means for the above-mentioned storage means, when transmission of the receipt information under absence is required with a transmitting means to transmit to the above-mentioned main phone with identification information, and this transmitting means A playback means to reproduce the receiver signal transmitted from the above-mentioned main phone is provided. The above-mentioned main phone the above -- a cordless handset -- identification information -- corresponding -- a cordless handset -- with a receipt information storage means to set the storage region which memorizes receipt information as according to the above -- the information on the purport which is during the absence by which setting transmission is carried out from a cordless handset, and a cordless handset, if identification information is received the storage region of the cordless handset concerned set as a receipt information storage means by this receipt information in the cordless handset under absence - - registering -- the call in from external telephone -- facing -- a cordless handset, if identification information is received The control means which memorizes a receiver signal to the storage region

of the cordless handset concerned which identifies a cordless handset by this receipt information that carried out absence registration, and is set as a receipt information storage means, the above -- the Request-to-Send information on the receipt information under absence by which setting transmission is carried out from a cordless handset, and a cordless handset, if identification information is received A cordless handset is identified by the receipt information which carried out [above-mentioned] absence registration, a receiver signal is read from the storage region of the cordless handset of a receipt information storage means concerned, and it is characterized by providing a transmitting means to transmit to the cordless handset concerned.

[0013] So that it may indicate to claim 2 in this case moreover, the above-mentioned main phone A means is established. the cordless handset which carried out [above-mentioned] absence registration -- counting which carries out counting of the count of arrival of the mail from external telephone to according to -- the above-mentioned control means The count information of arrival of the mail on an exception is memorized to the storage region of the cordless handset concerned set as the above-mentioned receipt information storage means with the above-mentioned receiver signal. this counting -- the cordless handset by which counting is carried out with a means -- the above-mentioned transmitting means the time of transmitting a receiver signal -- the count information of arrival of the mail on the cordless handset concerned -- adding -- a radio signal -- a cordless handset -- transmitting -- the above -- you may make it a cordless handset establish a notice means to notify the count information of arrival of the mail transmitted with a receiver signal from this main phone

[0014] While connecting with a circuit and transmitting [according to invention according to claim 3] and receiving a communications control signal, and ** and a receiver signal between external telephone and a cordless handset through this circuit The main phone which memorizes the receiver signal received from external telephone during absence by the telephone answering function, In the answering machine machine equipped with the cordless handset which delivers and receives a communications control signal, and ** and a receiver signal by transmission and reception between main phones, and talks over the telephone between external telephones through a main phone the above-mentioned main phone the response message which answers at the time of the arrival from the telephone of the above-mentioned exterior under absence -- the above -- a cordless handset -- with a response indication storage means to memorize to according to the above -- a cordless handset -- with a receipt information storage means to set the storage region which memorizes receipt information as according to According to assignment information, arrival of the mail is notified to the specifier machine concerned. the cordless handset transmitted on the occasion of the arrival from the telephone of the above-mentioned exterior -- When there is no response from the specifier machine to the notice of arrival of the mail concerned, external telephone is answered by the response message of the specifier machine concerned memorized by said response indication storage means. The control means which memorizes the message which notified the purport whose specifier machine concerned is absence, and received from external telephone to the storage region of the cordless handset concerned set as said receipt information storage means, a transmitting means to transmit the received message memorized during absence by this control means to the specifier machine concerned -- providing -- the above -- a cordless handset It is characterized by providing a receiving means to receive the received message under absence transmitted from the above-mentioned main phone, and a playback means to reproduce the received message which received with this receiving means.

[0015]

[Function] The cordless handset which delivers and receives a communications control signal, and ** and a receiver signal by transmission and reception between main phones, and talks over the telephone between external telephones through a main phone according to invention according to claim 1, While connecting with a circuit and transmitting and receiving a communications control signal, and ** and a receiver signal between external telephone and a cordless handset through this circuit the answering machine machine equipped with the main phone which memorizes the receiver signal received from external telephone during absence by the telephone answering function -- setting -- the above -- in a cordless handset Identification information is memorized and the information on a purport that transmission of the receipt information which the main phone memorized is required is set up during the information on a purport that self it is out with an

information setting means, and the above-mentioned absence. the cordless handset of self [means / storage] -- the self cordless handset which each information set up by the information setting means with a transmitting means memorized for the above-mentioned storage means, when it is transmitted to the above-mentioned main phone with identification information and transmission of the receipt information under absence is required with this transmitting means The receiver signal transmitted from the above-mentioned main phone is reproduced by the playback means. In the above-mentioned main phone a receipt information storage means -- the above -- a cordless handset -- identification information -- corresponding -- a cordless handset -- the storage region which memorizes receipt information sets it as according to -- having -- a control means -- the above -- the information on the purport which is during the absence by which setting transmission is carried out from a cordless handset, and a cordless handset, if identification information is received it registers with the storage region of the cordless handset concerned with which the cordless handset under absence is set as a receipt information storage means by this receipt information -- having -- the call in from external telephone -- facing -- a cordless handset, if identification information is received a cordless handset is identified by this receipt information that carried out absence registration, and a receiver signal memorizes to the storage region of the cordless handset concerned set as a receipt information storage means -- having -- the above -- the Request-to-Send information on the receipt information under absence by which setting transmission is carried out from a cordless handset, and a cordless handset, if identification information is received A cordless handset is identified by the receipt information which carried out [above-mentioned] absence registration, a receiver signal is read from the storage region of the cordless handset of a receipt information storage means concerned by the transmitting means, and it is transmitted to the cordless handset concerned.

[0016] According to invention according to claim 2, in this case moreover, in the above-mentioned main phone A means is established. the cordless handset which carried out [above-mentioned] ruble registration -- counting which carries out counting of the count of arrival of the mail from external telephone to according to -- the above-mentioned control means The count information of arrival of the mail on an exception is memorized in the storage region of the cordless handset concerned set as the above-mentioned receipt information storage means with the above-mentioned receiver signal. this counting -- the cordless handset by which counting is carried out with a means -- the above-mentioned transmitting means in case a receiver signal is transmitted, the count information of arrival of the mail on the cordless handset concerned is added, and it transmits to a cordless handset - - having -- the above -- the count information of arrival of the mail that a cordless handset is transmitted with a receiver signal from this main phone is notified by the notice means.

[0017] therefore, the cordless handset with which absence registration of the main phone was carried out in the call-in information and the receiver voice which manage the absence condition of two or more cordless handsets, and are received from a line wire during absence -- it can memorize to according to, a telephone answering function can be given for every cordless handset, and a telephone answering function equivalent to a main phone can be given to each of two or more cordless handsets which can be set to the extension phone machine which has a telephone answering function.

[0018] moreover, a cordless handset -- by notifying clearly the call-in information under absence in according to with a display or voice, even if it is in domestic, individually-addressed business can be clarified.

[0019] While connecting with a circuit and transmitting [according to invention according to claim 3] and receiving a communications control signal, and ** and a receiver signal between external telephone and a cordless handset through this circuit The main phone which memorizes the receiver signal received from external telephone during absence by the telephone answering function, In the answering machine machine equipped with the cordless handset which delivers and receives a communications control signal, and ** and a receiver signal by transmission and reception between main phones, and talks over the telephone between external telephones through a main phone in the above-mentioned main phone A response indication storage means memorizes according to. the response message which answers at the time of the arrival from the telephone of the above-mentioned exterior under absence -- the above -- a cordless handset -- The storage region which memorizes receipt information to according to is set as a receipt information storage means. the

above -- a cordless handset -- According to assignment information, arrival of the mail is notified to the specifier machine concerned. the cordless handset transmitted on the occasion of the arrival from the telephone of the above-mentioned exterior by the control means -- When there is no response from the specifier machine to the notice of arrival of the mail concerned, it is answered by external telephone by the response message of the specifier machine concerned memorized by said response indication storage means. If the message which the purport whose specifier machine concerned is absence was notified, and received from external telephone is memorized in the storage region of the cordless handset concerned set as said receipt information storage means a received message transmits to the specifier machine concerned with a transmitting means -- having -- the above -- in a cordless handset, if the received message under absence transmitted from the above-mentioned main phone is received by the receiving means, the received message which received with the playback means will be reproduced.

[0020] Therefore, when a cordless handset is used as a digital cordless telephone machine etc. in **, even if an individual uses a cordless handset as migration telephone outdoors, an outdoor cordless handset can be provided with the telephone answering function of the cordless telephone machine in **.

[0021]

[Example] Hereafter, an example is explained with reference to drawing 1 - drawing 6 .

[0022] Drawing 1 - drawing 6 are drawings showing one example which applied claim 1 and the answering machine machine of invention given in two to the cordless telephone machine corresponding to ISDN (integrated services digital network).

[0023] First, a configuration is explained.

[0024] Drawing 1 is the block block diagram of the main phone 1 of a cordless telephone machine. A main phone 1 is constituted by a driver / receiver circuit 2, the I interface control section 3, the speech codec section 4, the radio control section 5, the Radio Communications Department 6, an antenna 7, CPU8, memory 9-11, the key input section 12, the clock section 13, a display 14, and the hand set 15 in this drawing.

[0025] It connects with the subscriber line terminating set (henceforth DSU) linked to ISDN outside drawing, and a driver / receiver circuit 2 outputs the sending signal inputted from the I interface control section 3 to DSU while outputting the input signal inputted through this DSU to the I interface section 3.

[0026] Layer 1 control-circuit 3a to which the I interface control section 3 performs communications control of the layer 1 in the OSI (interconnect between open type systems) basic reference model of ISDN, Layer 2 control-circuit 3c which performs communications control of the layer 2 in the OSI basic reference model of ISDN, Layer 3 control-circuit 3c which performs communications control of the layer 3 in the OSI basic reference model of ISDN, I INTAFEISU CPU3d which controls layer 1 control circuit 3a, layer 2 control circuit 3c, and 3d of layer 3 control circuits to realize I INTAFEISU function of ISDN based on I advice of CCITT (Consulting Committee of International Telegraph & Telephone) -- since -- it is constituted.

[0027] The I interface control section 3 performs establishment processing of a speech path based on an ISDN communications control sequence through a driver / receiver circuit 2, and DSU between ISDN networks, and it outputs the receiver signal (mulowPCM digital sound signal) received after speech path establishment to the speech codec section 4 while it outputs the call setup message which receives at the time of a call in to CPU8.

[0028] Moreover, the I interface control section 3 sends out a call setup message to an ISDN network through a driver / receiver circuit 2, and DSU according to the call setup demand inputted from CPU8 at the time of the call request from a cordless handset by communication link format of ISDN, performs establishment processing of a speech path and sends out the transmission signal inputted from the speech codec section 4 after speech path establishment to an ISDN network through a driver / receiver circuit 2, and DSU.

[0029] The speech codec section 4 elongates the compressed transmission signal which is inputted from the radio control section 5 (decryption), and outputs it to the I interface (ADPCM->mulowPCM) control section 3 while it compresses the receiver signal inputted from the I interface control section 3 by the predetermined coding method (for example, ADPCM) (coding) and outputs

it to the radio control (mulowPCM->ADPCM) section 5 and memory 9-11.

[0030] The radio control section 5 controls the Radio Communications Department 6, and it outputs the transmission signal received from a cordless handset by the antenna 7 and the Radio Communications Department 6 to the speech codec section 4 while it transmits the compressed receiver voice which is inputted from the speech codec section 4 to a cordless handset from an antenna 7 by the predetermined radio signal. Moreover, the radio control section 5 outputs the sub-address information received from a cordless handset to CPU8.

[0031] the sub-address information included in the call setup message inputted from I INTAFEISU control section 3 while CPU (Central Processing Unit)8 controls each part in a main phone 1 by the various control programs stored in ROM (Read Only Memory) and performing the sequence as a main phone 1 -- analyzing -- the call-in point -- if a cordless handset is identified -- the call-in point -- the radio control section 5 notifies call generating to a cordless handset.

[0032] moreover, the absence mode setting information by which wireless transmission is carried out from the cordless handset 20 which mentions CPU8 later and a cordless handset -- the inside of the memory 10 which will mention the receipt information later if sub-address information is received -- a cordless handset -- it registers with according to as absence information. therefore -- CPU8 -- the inside of memory 10 -- a cordless handset -- the telephone answering function for two or more cordless handsets of every is realized by managing the absence information registered into according to.

[0033] moreover, the absence information which detected the sub-address information included in a call setup message, and was registered into memory 10 when CPU8 had a call in -- referring to -- the call-in point -- a cordless handset -- the cordless handset under absence registration, if in agreement with a sub-address If the demand for establishing a speech path to I INTAFEISU control section 3 is outputted and a speech path is established by I INTAFEISU control section 3 If read the absence response message for every cordless handset memorized beforehand to memory 10, it outputs to I INTAFEISU control section 3, the purport which is absence is notified to a call origination side and a message message is received the speech codec section 4 -- letting it pass -- a cordless handset -- the storage region which is made to correspond to an exception sub-address and is set up in memory 9 is made to memorize

[0034] Moreover, CPU8 reads the message message memorized in memory 9 corresponding to the information and this information at the time of the absence memorized by the memory 10 later mentioned according to the message message acknowledge signal by which wireless transmission is carried out from a cordless handset 20, and the cordless handset concerned is made it to carry out wireless transmission from an antenna 7 by the radio control section 5 and the Radio Communications Department 6.

[0035] furthermore, CPU8 -- the arrival from the telephone of the exterior under absence -- responding -- the cordless handset in memory 10 -- the count of exception arrival is counted up.

[0036] Moreover, CPU8 outputs a call setup demand to I INTAFEISU control section 3 also with the phase hand.telephone number which off-hook actuation of a hand set 15 keys from a call request and the key input section 12, performs a communications control sequence, displays the information which shows the key input information and the communication link condition under message on a display 14, and controls it to be able to talk over the telephone by microphone 15a and loudspeaker 15b of a hand set 15.

[0037] As memory 9 consists of RAM (Random Access Memory) etc. and is shown in drawing 2 , a storage region is formed to the address 0 - n, the message message which received during absence is stored in a predetermined field, and the address information of a field which memorized the message message is stored in memory 10 as message message management information.

[0038] Memory 10 consists of RAM etc. and consists of an absence information-management field which memorizes an absence condition, a count of arrival of the mail, a response message, etc. for every cordless handset as shown in drawing 3 , and a message information-management field which carries out the storage management of a call-in hour entry and the calling number information as information at the time of the call in of the message message while carrying out the storage management of the start address information and end address information of each message message which were memorized by memory 9 corresponding to the cordless handset concerned.

[0039] Memory 11 consists of ROMs etc. and constitutes the voice ROM which stores the voice data at the time of notifying with voice the contents (for example, count of arrival of the mail etc.) of the voice memory assignment information memory memorized in memory 10.

[0040] The key input section 12 is equipped with a ten key, various mode keys, etc., and outputs a call request, the phase hand telephone number, etc. which a user keys to CPU8. The clock section 13 outputs the hour entry to CPU8. A display 14 consists of liquid crystal display panels etc., and displays the key input information inputted from CPU8, the communication link condition under message, etc.

[0041] Drawing 4 is the block block diagram of the cordless handset 20 of a cordless telephone machine. A cordless handset 20 is constituted by an antenna 21, the Radio Communications Department 22, the radio control section 23, the speech codec section 24, A/D and a D/A converter 25, CPU26, a display 27, the key input section 28, a microphone 29, a loudspeaker 30, and the ringer 31 in this drawing. The Radio Communications Department 22 changes into a predetermined radio frequency signal the sending signals (a call origination signal, transmission signal, etc.) inputted from the radio control section 23, and transmits from an antenna 21 while it outputs the input signals (a call generating signal, receiver signal, etc.) which receive by the radio signal from a main phone 1 with an antenna 21 to the radio control section 23.

[0042] The radio control section 23 outputs the transmission signal inputted from the call-request signal and the speech codec section 24 which are inputted from CPU26 to the Radio Communications Department 22 while it outputs a call generating signal to CPU26 among the input signals inputted from the Radio Communications Department 22 and outputs a receiver signal to the speech codec section 24.

[0043] The speech codec section 24 compresses the transmission signal inputted from A/D and D/A converter 25 by the predetermined coding method (coding), and outputs it to the radio control section 23 while it elongates the compressed receiver signal (for example, ADPCM digital sound signal) which is inputted from the radio control section 23 (decryption) and outputs it to A/D and D/A converter 25.

[0044] A/D and D/A converter 25 change into a digital signal the transmission voice which changes into an analog sound signal the digital sound signal inputted from the speech codec section 24, and outputs from a loudspeaker 30, and is inputted from a microphone 29, and outputs it to the speech codec section 24 as a digital sound signal while it carries out singing of the ringer 31 with the call generating signal inputted from CPU26 and tells a call in.

[0045] CPU26 controls each part in a cordless handset 20 by the various control programs stored in ROM etc., and the sequence as a cordless handset 20 is performed. If output the call generating signal inputted from the radio control section 23 to A/D and D/A converter 25, a call in is made to notify and the hook key stroke in the key input section 28 detects an off-hook signal. If the radio control section 23, and A/D and a D/A converter 25 are controlled, ** and a receiver signal are delivered, received and awaited and the hook key stroke in the key input section 28 sometimes detects an off-hook signal. A call request is carried out and wireless transmission of the call origination signal is carried out from an antenna 21 by the radio control section 23 and the Radio Communications Department 22 according to the phase hand telephone number.

[0046] Moreover, while CPU26 carries out wireless transmission of the radio signal of the absence mode registration information for registering into a main phone 1 the purport it is [purport] out according to the key stroke of the absence mode setting key in the key input section 28 from an antenna 21 by the radio control section 23 and the Radio Communications Department 22. Wireless transmission of the radio signal of the message message acknowledge signal for notifying that to a main phone 1 according to actuation of the message message confirmation key in the key input section 28 is carried out from an antenna 21 by the radio control section 23 and the Radio Communications Department 22.

[0047] the cordless handset in which wireless transmission is carried out by actuation of the message message confirmation key in the key input section 28 from a main phone 1 while displaying the key input information which a display 27 consists of liquid crystal display panels etc., and is inputted from CPU26, the communication link condition under message, etc. -- a call-in hour entry, calling number information, and the count information of arrival of the mail are displayed among the

absence information shown in above-mentioned drawing 3 of an exception.

[0048] A ten key, various mode keys, an absence mode setting key, a message message confirmation key, etc. are prepared, and the key input section 28 outputs the call request which a user keys, the phase hand telephone number, an absence mode setting signal, a message message acknowledge signal, etc. to CPU26.

[0049] Next, actuation of this example is explained.

[0050] First, it wears based on the usual control procedure, and - dispatch processing is explained with reference to drawing 5.

[0051] if a call setup (it is henceforth called SET UP) boils an ISDN network and is required from a partner terminal side -- DSU of an ISDN network to the main phone 1, and the driver / receiver circuit 2 -- minding -- the I interface control section 3 -- SET UP is received. At this time, with an ISDN network, while suspending a speech path (channel), call setup reception (it is called CALL PROC CALL PROCEEDing and henceforth) is sent out to an other party terminal. At the I interface control section 3, it is SET from an ISDN network. It is this SET in response to UP. UP message is outputted to CPU8. Moreover, the call (ALERTing) which tells that it is under call based on an ISDN communications control sequence is sent out to an other party terminal through an ISDN network and this ISDN network.

[0052] SET inputted from the I interface control section 3 in CPU8 the sub-address information added to the self-address from UP message -- analyzing -- the call-in point -- a cordless handset -- identifying -- the call-in point -- the radio signal which notifies call generating from an antenna 7 by the radio control section 5 and the Radio Communications Department 6 to a cordless handset is made to transmit

[0053] In a cordless handset 20, if the Radio Communications Department 22 and the radio control section 23 receive the notice signal of this call generating and it is notified to CPU26, CPU26 will output a call generating signal to A/D and D/A converter 25, will carry out singing of the ringer 31, and will tell a user about a call in. If it is directed to off-hook ** CPU 26 by the hook key stroke in a user's key input section 28 according to the singing of this ringer 31, a reply signal will be transmitted to the radio control section 23 from CPU26, and wireless transmission will be done by the Radio Communications Department 22 from an antenna 21 at a main phone 1.

[0054] In a main phone 1, if the reply signal received by the antenna 7, the Radio Communications Department 6, and the radio control section 5 is transmitted to CPU8, CPU8 will output the information which answers a call setup demand to the I interface control section 3. The I interface control section 3 transmits a response (it is called CONN CONNect and henceforth) to an ISDN network through a driver / receiver circuit 2, and DSU based on this information. With an ISDN network, while receiving this CONN and establishing a speech path (channel connection), CONN is sent out to an other party terminal and a response check (CONNect ACKnowledge) is sent out to a main phone 1.

[0055] If a speech path is established, I INTAFEISU control section 3 will decompose the receiving frame received through a driver / receiver circuit 2 from DSU, and will output a receiver signal to the speech codec section 4.

[0056] In the speech codec section 4, if the inputted receiver signal is compressed by the predetermined coding method and it outputs to the radio control section 5, wireless transmission of the receiver signal will be done by the radio control section 5 and the Radio Communications Department 6 from an antenna 7 at the cordless handset 20 of the call-in point.

[0057] In a cordless handset 20, if the receiver signal received by the antenna 21, the Radio Communications Department 22, and the radio control section 23 is transmitted to the speech codec section 24, the speech codec section 24 will elongate the compressed receiver signal which is inputted (decryption), and will output it to A/D and D/A converter 25. A/D and D/A converter 25 change the receiver signal inputted into an analog sound signal, outputs it to a loudspeaker 30, and can tell a user a receiver voice.

[0058] Moreover, in a cordless handset 20, the transmission voice inputted from a microphone 29 is digitized by A/D and D/A converter 25, and is outputted to the speech codec section 24 as a transmission signal. If the speech codec section 24 compresses a transmission signal by the predetermined coding method and outputs it to the radio control section 23, wireless transmission of

the transmission signal will be done by the radio control section 23 and the Radio Communications Department 22 from an antenna 21 at a main phone 1.

[0059] In a main phone 1, if the transmission signal received by the antenna 7, the Radio Communications Department 6, and the radio control section 5 is transmitted to the speech codec section 4, the speech codec section 4 will elongate a transmission signal (decryption), and will output it to the I interface control section 3. The I interface control section 3 generates a transmission frame by communication link format of ISDN, and sends out the inputted transmission signal to an ISDN network through a driver / receiver circuit 2, and DSU.

[0060] Thus, a cordless handset 20 performs two-way communication between partner terminals through a main phone 1, and a message is performed.

[0061] And if directed to ** CPU 26 on hook by the hook key stroke in a user's key input section 28, a line disconnection signal will be transmitted to the radio control section 23 from CPU26, and wireless transmission will be done by the Radio Communications Department 22 from an antenna 21 at a main phone 1.

[0062] In a main phone 1, if the line disconnection signal received by the antenna 7, the Radio Communications Department 6, and the radio control section 5 is transmitted to CPU8, CPU8 will output the information over this line disconnection signal to the I interface control section 3. The I interface control section 3 outputs cutting (it is called DISC DISConnect and henceforth) to an ISDN network through a driver / receiver circuit 2, and DSU. With an ISDN network, this DISC is received, while cutting a speech path (channel), DISC is sent out to an other party terminal and disconnection (it is called REL RELease and henceforth) is sent out to a main phone 1. Moreover, an other party terminal also sends out REL to an ISDN network in response to this DISC.

[0063] Thereby, an ISDN network opens a channel (channel) wide, on an ISDN network, an ISDN network sends out open termination (RELease COMPlète) to an other party terminal, and a main phone 1 ends it, respectively.

[0064] In addition, in this example, it is the case where ONFUKKU is directed by the call-in side, and when absence information is registered, since ONFUKKU is directed by the call origination side, DISC is sent out from an other party terminal and disconnection of a speech path is performed like the following.

[0065] Next, it wears based on an absence mode tense procedure, and - dispatch processing is explained with reference to drawing 5.

[0066] In addition, the same place as the usual control procedure omits the explanation.

[0067] absence mode registration information for CPU26 to register an out purport into a main phone 1, if an absence mode setting key is operated by a user's key stroke in the key input section 28 of a cordless handset 20 and it is inputted into CPU26, and a self cordless handset -- a sub-address is changed into a radio signal by the radio control section 23 and the Radio Communications Department 22, and wireless transmission is carried out from an antenna 21.

[0068] if this radio signal is received in a main phone 1 -- that receipt information -- CPU8 -- the inside of memory 10 -- a cordless handset -- it is registered as absence status information of an exception, and it is managed that concerned cordless handset it is out with this registered absence status information.

[0069] When the absence status information of a cordless handset is registered into this memory 10, it is SET from an other party terminal. When UP is required of an ISDN network, DSU of a main phone 1, and the driver / receiver circuit 2 are minded from an ISDN network, and the I interface control section 3 is SET. UP is received. While suspending a speech path (channel) with an ISDN network at this time, it is CALL to an other party terminal. It is sent out in PROC.

[0070] At the I interface control section 3, it is SET from an ISDN network. It is this SET in response to UP. UP message is outputted to CPU8. Moreover, the call (ALERTing) which tells that it is under call based on an ISDN communications control sequence is sent out to an other party terminal through an ISDN network and this ISDN network.

[0071] Here, it explains with reference to the flow chart which shows the processing performed by CPU8 at the time of an absence setup to drawing 6.

[0072] And if on-hook ***** is carried out by the hook key stroke of an other party terminal, cutting (it is called DISC DISConnect and henceforth) will be outputted to an ISDN network. With

an ISDN network, this DISC is received, while cutting a speech path (channel), DISC is sent out to a main phone 1 and disconnection (it is called REL RELease and henceforth) is sent out to an other party terminal.

[0073] Thereby, an ISDN network opens a speech path (channel) wide, on an ISDN network, an ISDN network sends out the completion of release (RELease COMPlete) to a main phone 1, and an other party terminal ends it, respectively.

[0074] And in I INTAFEISU control section 3, according to the off-hook signal inputted from CPU8, CONN is transmitted to an ISDN network through a driver / receiver circuit 2, and DSU, and an ISDN network establishes a speech path (channel connection). If a speech path is established, CPU8 will read the digital sound signal compressed into memory 10 as an absence response message for every cordless handset memorized beforehand, and will output it to the speech codec section 4. In the speech codec section 4, the digital sound signal inputted from memory 10 is elongated, and it changes into a muLaw digital PCM signal, and outputs to I INTAFEISU control section 3.

[0075] Moreover, I INTAFEISU control section 3 transmits the digital PCM signal inputted from the speech codec section 4 to an ISDN network through a driver / receiver circuit 2, and DSU. The message of the purport to which it is [cordless handset / of the call-in point / 20] out in a call origination side with this transmission is notified, and the purport which can be message notified to the cordless handset under that absence is notified. If I INTAFEISU control section 3 receives the message message transmitted from a call origination side according to this message notification through DSU, and the driver / receiver circuit 2, I INTAFEISU control section 3 will output that message message to the speech codec section 4.

[0076] In drawing 6, CPU8 carries out the sequential storage of the message message inputted from the speech codec section 4 to the empty address in memory 9. While memorizing to the voice memory assignment information memory area which showed the start address and the end address of the storage region to above-mentioned drawing 3 which memorized the message management information on the cordless handset concerned in memory 10 The hour entry at the time of a call in and the calling number information transmitted from the call origination side are memorized to the memory area concerned, and this processing is ended (step S4).

[0077] A cordless handset is identified (step S1). the sub-address information added to the self-address included in the call setup (SET UP) message inputted from the above-mentioned I interface control section 3 by CPU8 in drawing 6 -- detecting -- the call-in point -- the cordless handset of the absence information registered into the identified sub-address and memory 10 -- it distinguishing, and whether a sub-address is in agreement, if in agreement the cordless handset corresponding to the sub-address in the memory 10 which is absence information -- while counting up the count of arrival of the mail of an exception, call-in time amount and a calling number are memorized (step S2). Next, while displaying the count of arrival of the mail, the call-in time amount, and the calling number which are this memorized absence information on the display 14 of a main phone 1, it transmits to the cordless handset 20 which identified that absence information through the radio control section 5, the Radio Communications Department 6, and an antenna 7. In a cordless handset 20, this absence information is inputted into CPU26 through an antenna 21, the Radio Communications Department 22, and the radio control section 23, and CPU26 displays this inputted absence information on a display 27, and updates the display of the count of arrival of the mail, call-in time amount, and a calling number. thereby -- a user -- the time of going home -- self--- the absence information over a cordless handset can be recognized.

[0078] Next, playback actuation of the message message memorized during absence is explained.

[0079] the message message acknowledge signal for notifying that to a main phone 1, if actuation of the message message confirmation key in the key input section 28 by the user is performed to a main phone 1 in the cordless handset 20 by which absence registration was carried out and it is inputted into CPU26, and a self cordless handset -- wireless transmission of the radio signal containing a sub-address is done by the radio control section 23 and the Radio Communications Department 22 from an antenna 21 at a main phone 1.

[0080] if the radio control section 5 receives this radio signal in a main phone 1 -- that message message acknowledge signal and a cordless handset -- a sub-address is transmitted to CPU8. the cordless handset inputted from the radio control section 5 in CPU8 -- the cordless handset of the

absence information on a cordless handset that the sub-address is registered into memory 10 -- it distinguishing, and whether it is in agreement with a sub-address, if in agreement And the address is referred to. the cordless handset concerned of the message information management field in memory 10 -- the start address in the memory 9 memorized by the ** -- The receiver voice data under absence memorized in memory 9 are read one by one, and wireless transmission is carried out from an antenna 7 one by one to a cordless handset 20 by the communications control section 5 and the Radio Communications Department 6.

[0081] In a cordless handset 20, if the hour entry at the time of the receiver voice data and the call in by which wireless transmission is carried out from a main phone 1, calling number information, and the count information of arrival of the mail are received in the radio control circuit 23, it is transmitted to the speech codec section 24, and the speech codec section 24 will elongate the compressed message message which is inputted (decryption), and will output it to A/D and D/A converter 25. In A/D and D/A converter 25, the message message inputted is changed into an analog sound signal, it outputs to a loudspeaker 30, and a message message can be told to a user.

[0082] therefore, in the cordless telephone machine of this example the cordless handset with which absence registration of the main phone 1 was carried out in the call-in information and the message message which manage the absence condition of two or more cordless handsets, and receive from a line wire during absence, since he is trying to memorize to according to It can have a telephone answering function for every cordless handset, and can perform that it is equivalent to what gave the telephone answering function to each of two or more cordless handsets which can be set to the cordless telephone machine which has a telephone answering function.

[0083] moreover, a cordless handset -- by notifying clearly the call-in information under absence in according to with a display or voice, even if it is in domestic, individually-addressed business can be clarified.

[0084] In addition, when a message message confirmation key is operated with a cordless handset 20, without restricting to this, this absence information is read from memory 10, and you may make it notify to a cordless handset 20 in the above-mentioned example, although the notice to the cordless handset 20 of absence information (the count of arrival of the mail, call-in time amount, and calling number) was given at the time of the arrival of a message message.

[0085] Moreover, as this notice approach, there is the approach of notifying with a display or voice. the approach of notifying by display -- a main phone 1 -- the message message acknowledge signal from a cordless handset 20, and a cordless handset -- if a sub-address is received, CPU8 of this main phone 1 will read the absence information on the cordless handset 20 concerned memorized by memory 10, will radiocommunicate to a cordless handset 20, and will display this absence information on a display 27 in a cordless handset 20.

[0086] on the other hand, the approach of notifying with voice -- a main phone 1 -- the message message acknowledge signal from a cordless handset 20, and a cordless handset -- if a sub-address is received, CPU8 of this main phone 1 will read the absence information on the cordless handset 20 concerned memorized by memory 10, will read the voice data corresponding to that absence information from the voice ROM in memory 11, and will carry out wireless transmission to a cordless handset 20 through the sequential radio control section 5, the Radio Communications Department 6, and an antenna 7. And in a cordless handset 20, the absence information under absence (the count of arrival of the mail, call-in time amount, and calling number) can be told to a user with voice by changing the voice data corresponding to the received absence information into an analog sound signal through an antenna 21, the Radio Communications Department 22, the radio control section 23, the speech codec section 24, and A/D and a D/A converter 25, and outputting to a loudspeaker 30.

[0087] Furthermore, although this invention was connected to the ISDN network in the above-mentioned example, connecting with an analog network is also possible. in this case -- since the sub-address of a cordless handset is not obtained like an ISDN network in an analog network -- beforehand -- every cordless handset -- a cordless handset -- a number -- setting up -- a calling party -- this cordless handset -- a cordless handset is identified to a main phone by having a number inputted -- making -- absence -- a core -- it is possible to specify a machine and to make a message memorize.

[0088] Moreover, the answering machine machine is possible also at the extension phone machine connected with the cable, without restricting cordless.

[0089] Drawing 7 - drawing 11 are drawings showing one example which applied the answering machine machine of invention according to claim 3 to the digital cordless telephone machine (HPP) corresponding to PSTN (dial-up line network).

[0090] First, a configuration is explained.

[0091] Drawing 7 is the block block diagram of the main phone 40 of a cordless telephone machine. this drawing -- setting -- a main phone 40 -- the voice change-over section 41, the PCM codec section 42, voice coding / decryption section 43, the communications control section 44, the wireless section 45, an antenna 46, CPU47, the key input section 48, and a cordless handset -- it is constituted by the information memory 49, ID-ROM50, a display 51, the ringer loudspeaker 52, and the sound recording playback section 53.

[0092] The voice change-over section 41 connects with the external circuit L, and it outputs the transmission signal inputted from the PCM codec section 42 to external telephone through Circuit L while it switches and outputs the receiver signal received after speech path establishment from external telephone through this circuit L to the PCM codec section 42 or the sound recording playback section 53.

[0093] The PCM codec section 42 changes into an analog sound signal the PCM digital sound signal inputted from voice coding / decryption section 43, and outputs it to the voice change-over section 41 while it changes for example, into a PCM digital sound signal the receiver signal inputted from the voice change-over section 41 and outputs it to the voice coding section 43.

[0094] Voice coding / decryption section 43 decrypts the encoded transmission signal which is inputted from the communications control section 44 (ADPCM->PCM), and outputs it to the PCM codec section 42 while it encodes the PCM digital sound signal inputted from the PCM codec section 42 by the predetermined coding method (for example, ADPCM) and outputs it to the communications control (PCM->ADPCM) section 44.

[0095] The communications control section 44 controls the wireless section 45 based on the program in ROM which is not illustrated, and controls the communication link with a cordless handset by the predetermined communication procedure. That is, a control signal is added to the encoded receiver voice which is inputted from voice coding / decryption section 43, a slot is created, and it inserts in a frame to predetermined timing, and outputs to the radio control section 45. Moreover, a slot is extracted from the frame data stream sent from the radio control section 45 to predetermined timing, this slot is divided into a control signal and transmission voice, and transmission voice is outputted to voice coding / decryption 43. Furthermore, the sub-address information on the cordless handset within a control signal is outputted to CPU47.

[0096] The wireless section 45 consists of a radio-frequency head which carries out frequency conversion of a transceiver signal, and the modem section which performs a strange recovery. The modem section is outputted to the communications control section 44 as a frame data stream sent from the communications control section 44 based on the control signal from the communications control section 44. In a radio-frequency head, frequency conversion is carried out near 10MHz with two steps of mixers from a 1.9GHz band, and the electric wave which carried out frequency conversion of the sending signal sent from the modem section to the frequency of a 1.9GHz band, and transmitted through the antenna 46, and was received through the antenna 46 is outputted to the modem section.

[0097] CPU47 controls each part in a main phone 40 by the various control programs stored in ROM, and the sequence as a main phone 40 is performed. On the occasion of the call in from external telephone, carry out singing of the ringer loudspeaker 52, and arrival of the mail is told. Moreover, if the sub-address information included in the call setup message inputted from the communications control section 44 on the occasion of a call in is analyzed and the call in to a specifier machine is identified, the communications control section 44 will notify a call in to the specifier machine.

[0098] moreover, when CPU47 does not have the cordless handset 60 later mentioned to the notice of a call in to a response, the cordless handset 60 concerned is absence -- recognizing -- beforehand - a cordless handset -- the information memory 49 -- a cordless handset -- the absence response

message registered into according to -- external telephone -- receiving -- transmitting -- a cordless handset -- when the absence response message of an exception is not registered, it notifies that specifier machine transmit a common response message and it is out.

[0099] And after recording the received message which receives from external telephone to the transmitted response message in the sound recording playback section 53, connection with Circuit L is cut and the message between external telephones is closed. And when transfer assignment of the received message recorded during this absence is set up, in order to transmit the received message concerned to the outdoor cordless handset 60, line wire call origination processing to the cordless handset 60 mentioned later is performed.

[0100] therefore -- CPU47 -- a cordless handset -- the inside of the information memory 49 -- a cordless handset -- the absence response message registered into according to, and a cordless handset -- the telephone answering function for two or more cordless handsets of every is realized by managing the received message memorized to according to. A telephone answering function is offered also to the cordless handset 60 which manages the received message which received a message during absence of the cordless handset 60 in use outdoors within a main phone 40, and is used outdoors by notifying the received message under absence certainly to the cordless handset 60 equipped with the function as migration telephone mentioned especially later.

[0101] The key input section 48 is equipped with a ten key, various mode keys, etc., and outputs a call request, the phase hand telephone number, etc. which a user keys to CPU47.

[0102] a cordless handset -- the information memory 49 -- a cordless handset -- number information and a cordless handset -- while memorizing line wire number information -- a cordless handset -- the transfer assignment information that a transfer of the absence response message of an exception and the recorded message under absence is directed etc. is memorized. ID-ROM50 forms the memory area which registers self and the recognition number of a cordless handset.

[0103] A display 51 consists of liquid crystal display panels etc., and displays the key input information inputted from CPU47, the communication link condition under message, etc. The sound recording playback section 53 records the receiver voice inputted from the voice change-over section 41, and is reproduced.

[0104] Drawing 8 is the block block diagram of the cordless handset 60 of a cordless telephone machine.

[0105] The cordless handset 60 of this example functions as a cordless handset of the usual cordless telephone machine, when used within ** in which a cordless telephone machine is installed, and when it carries out to the outdoors and is used, it functions as migration telephone.

[0106] A cordless handset 60 is constituted by an antenna 61, the wireless section 62, the communications control section 63, voice coding / decryption section 64, the PCM codec section 65, the amplifier section 66, the receiver loudspeaker 67, the transmission microphone 68, CPU69, the key input section 70, ID-ROM71, a display 72, and the ringer loudspeaker 73.

[0107] The wireless section 62 changes into a modulation and a predetermined radio frequency signal the sending signals (a call origination signal, transmission signal, etc.) inputted from the communications control section 63, and transmits from an antenna 61 while it carries out frequency conversion and a recovery and outputs the input signals (a call generating signal, receiver signal, etc.) which receive by the radio signal from a main phone 40 with an antenna 61 to the communications control section 63.

[0108] The communications control section 63 outputs the transmission signal inputted from the call-request signal and voice coding / decryption section 64 which are inputted from CPU69 to the wireless section 62 while it outputs a call generating signal to CPU69 among the input signals inputted from the wireless section 62 and outputs a receiver signal to voice coding / decryption section 64.

[0109] Voice coding / decryption section 64 encodes the transmission signal (PCM signal) inputted from the PCM codec section 65 by the predetermined coding method (for example, ADPCM method), and outputs it to the communications control section 63 while it decrypts the encoded receiver signal (for example, ADPCM digital sound signal) which is inputted from the communications control section 63 (ADPCM->PCM) and outputs it to the PCM codec section 65.

[0110] The PCM codec section 65 changes into a PCM digital sound signal the transmission signal

inputted from the amplifier section 66, and outputs it to voice coding / decryption section 64 while it changes into an analog sound signal the PCM digital sound signal inputted from voice coding / decryption section 64 and outputs it to the amplifier section 66.

[0111] The amplifier section 66 amplifies the analog sound signal inputted from the PCM codec section 65 with a predetermined amplification factor, it reproduces from the receiver loudspeaker 67, and it amplifies the transmission signal inputted from the transmission microphone 68 with a predetermined amplification factor, and outputs it to the PCM codec section 65.

[0112] CPU69 controls each part in a cordless handset 60 by the various control programs stored in ROM etc., and the sequence as a cordless handset is performed. For example, when a cordless handset 60 is used as a cordless handset of a cordless telephone machine within ** If singing of the ringer loudspeaker 73 is carried out with the call-in signal inputted from the communications control section 63 by wireless transmission of a main phone 40, a call in is told and the hook key stroke in the key input section 70 detects an off-hook signal The communications control section 63 is controlled and it is made to talk by delivered and receiving ** and a receiver signal over the telephone between external telephones through a main phone 40.

[0113] Moreover, when a cordless handset 60 is used outdoors as migration telephone, CPU69 If the wireless transmission from a public base transceiver station receives a call in and a call-in signal is inputted from the communications control section 63 in the communication link within the circle of a public base transceiver station When singing of the ringer loudspeaker 73 is carried out, a call in is told and the hook key stroke in the key input section 70 detects an off-hook signal, the communications control section 63 is controlled and it is made to talk by delivered and receiving ** and a receiver signal over the telephone between phase hand telephones through a public base transceiver station.

[0114] Furthermore, CPU69 performs reception of the received message transmitted from a main phone 40, when the line wire call origination from a main phone 40 receives "those with a received message."

[0115] A ten key, various mode keys, etc. are prepared, and the key input section 70 outputs a call request, the phase hand telephone number, etc. which a user keys to CPU69. ID-ROM71 forms the memory area which registers self and the recognition number of a main phone. A display 72 consists of liquid crystal display panels etc., and displays the key input information inputted from CPU69, the communication link condition under message, etc.

[0116] Next, actuation of this example is explained.

[0117] First, the arrival-of-the-mail processing from the line wire in a main phone 40 is explained based on the flow chart shown in drawing 9 and drawing 10 .

[0118] It will connect with the circuit L (step T2), and a main phone 40 will transmit a selection message (for example, "since it calls, please wait") etc. to a call origination side, if the call in from external telephone is received through Circuit L (step T1) (step T3). At a call origination side, while the response message transmitted from this main phone 40 is flowing, the single digit number for specifying a cordless handset is operated by the push button. In a main phone 40, distinction of the child equipment item number transmitted by the DTMF signal performs processing which calls a specifier machine (step T5). (step T four) moreover, the case where there is no input of a call origination side to a specifier machine -- all -- processing which calls a cordless handset is performed (step T6).

[0119] In addition, since the identification number of a cordless handset will be transmitted as a sub-address into a call-in signal if it is the main phone connected to ISDN, processing of step T3 and T four becomes unnecessary.

[0120] call processing of a specifier machine -- then, call appearance -- when the existence of the response from a cordless handset is distinguished the bottom (step T7), namely, a specifier machine is in ** and off-hook actuation of a user is performed, the usual line wire message processing is performed and the message between call origination side telephone and the specifier machine concerned is enabled (step T8). moreover, the case where a specifier machine to a response cannot be found -- a cordless handset -- it distinguishes whether the absence response message for the specifier machines concerned is registered into the information memory 49 (step T9). When the absence response message is registered, the absence response message is transmitted and a calling

party is notified of the specifier machine concerned being absence (step T10). Moreover, when the absence response message for specifier machines is not registered, a common absence response message is transmitted (step T11). Then, after receiving the message transmitted by the calling party according to an absence response message and recording in the sound recording playback section 53 (step T12), processing which cuts the circuit linked to the call origination side telephone concerned is performed (step T13).

[0121] subsequently, the existence of transfer assignment of the recorded received message -- distinguishing (step T14) -- namely, a cordless handset -- it distinguishes by the existence of transfer assignment information which directs a transfer of the recorded message under absence memorized by the information memory 49. the case where there is transfer assignment -- the public number of the cordless handset concerned -- a cordless handset -- it reads from the information memory 49 and line wire call origination processing is performed (step T15). When the circuit between the specifier machines concerned is connected (step S16), a message "with a message" is transmitted and it is made to display on the display 72 of a cordless handset 60 (step S17). Subsequently, after reproducing a recorded message by the sound recording playback section 53, performing transfer processing, if playback of a recorded message is demanded from the user of a cordless handset 60 and there is a response from a cordless handset 60 (step S18), and completing playback transfer processing of a recorded message, cutting processing of the circuit linked to a cordless handset 60 is performed, and this processing is ended.

[0122] Next, the reception performed with a cordless handset 60 is explained based on the flow chart shown in drawing 11 .

[0123] First, a cordless handset 60 will distinguish the existence of the reception "with a received message" transmitted from the main phone 40 concerned on the occasion of the arrival, if the line wire call origination processing to the cordless handset concerned by the above-mentioned main phone 40 detects arrival of the mail (step T21). When not receiving the message, the usual waiting receptacle processing for arrival of the mail is performed (step T22), and when the message is received, "those with a message" are displayed on a display 72 (step T23).

[0124] Subsequently, when the existence of reception of a playback demand message is distinguished (step T24) and there is a playback demand message, the message distinguishes whether it is a specifier machine message (step T25). In the case of a specifier machine message, the specifier machine message is reproduced (step T26). Furthermore, when it is not a specifier machine message, it distinguishes whether a playback demand message is a recorded message after playback termination of a specifier machine message (step T27), and the recorded message is reproduced (step T28), after playback termination, in the case of a recorded message, the circuit linked to a main phone 40 is cut, and it ends this processing (step T29).

[0125] As mentioned above, in a main phone 40, when the cordless handset 60 is used outdoors as migration telephone Since record the message which received a message to the specifier machine 60 concerned, "those with a message" are transmitted by the line wire call origination to the cordless handset 60 concerned, playback of a recorded message is urged and he is trying to tell Also to the cordless handset 60 used as migration telephone, the specifier machine message which carried out reception sound recording with the main phone 40 can be transmitted certainly, and can be told.

[0126] Therefore, when a cordless handset is used as a digital cordless telephone machine etc. in **, even if an individual uses a cordless handset as migration telephone outdoors, an outdoor cordless handset can be provided with the telephone answering function of the cordless telephone machine in **.

[0127] Moreover, in a main phone 40, when transfer assignment is made, and a recorded message is gone home, it will be heard. A recorded message can be checked by carrying out processing explained by above-mentioned drawing 11 also in this case. That is, when the LCCH super frame transmitted from a main phone 40 is able to be established, it notifies that there is a recorded message by this LCCH super frame to a cordless handset 60 (it corresponds to step T21 of drawing 11). After receiving this, a main phone 40 and a link are established and the same processing as the following is carried out. ** by having transmitted the recorded message by stiffness -- even if there is no ****, a recorded message can be checked after going home.

[0128]

[Effect of the Invention] the cordless handset with which absence registration of the main phone was carried out in the call-in information and the receiver voice which manage the absence condition of two or more cordless handsets, and are received from a line wire during absence according to invention claim 1 and given in two -- it can memorize to according to, a telephone answering function can be given for every cordless handset, and a telephone answering function equivalent to a main phone can be given to each of two or more cordless handsets which can be set to the extension phone machine which has a telephone answering function. moreover, a cordless handset -- by notifying clearly the call-in information under absence in according to with a display or voice, even if it is in domestic, individually-addressed business can be clarified. When a cordless handset is used as a digital cordless telephone machine etc. in **, even if an individual uses a cordless handset as migration telephone outdoors according to invention according to claim 3, an outdoor cordless handset can be provided with the telephone answering function of the cordless telephone machine in **.

[Translation done.]

* NOTICES *

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2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The block block diagram of the main phone of the cordless telephone machine which applied claim 1 and the answering machine machine of invention given in two.

[Drawing 2] Drawing showing the configuration of the voice data storage region set up in the memory 9 of drawing 1 .

[Drawing 3] Drawing showing the configuration of the voice memory assignment information memory memorized in the memory 10 of drawing 1 .

[Drawing 4] The block block diagram of the cordless handset of the cordless telephone machine which applied the answering machine machine of this invention.

[Drawing 5] Drawing showing the control procedure to the usual ISDN network.

[Drawing 6] The flow chart of the reception performed to the cordless handset under absence by CPU of drawing 1 .

[Drawing 7] The block block diagram of the main phone of the cordless telephone machine which applied the answering machine machine of invention according to claim 3.

[Drawing 8] The block block diagram of the cordless handset of the cordless telephone machine which applied the answering machine machine of invention according to claim 3.

[Drawing 9] The flow chart of the arrival-of-the-mail processing from the line wire performed with the main phone of drawing 7 .

[Drawing 10] The flow chart which follows arrival-of-the-mail processing from the line wire of drawing 9 .

[Drawing 11] The flow chart of the arrival-of-the-mail processing performed with the cordless handset of drawing 8 .

[Description of Notations]

- 1 40 Main phone
- 2 Driver Receiver Circuit
- 3 I INTAFEISU Control Section
- 4 Speech Codec Section
- 5 Radio Control Section
- 6 Radio Communications Department
- 7 46 Antenna
- 8 47 CPU
- 9-11 Memory
- 12 48 Key input section
- 13 Clock Section
- 14 51 Display
- 15 Hand Set
- 20 60 Cordless handset
- 21 61 Antenna
- 22 Radio Communications Department
- 23 Radio Control Section
- 24 Speech Codec Section
- 25 A/D and D/A Converter

26 69 CPU
27 73 Display
28 70 Key input section
29 Microphone
30 Loudspeaker
31 Ringer
41 Voice Change-over Section
42 65 PCM codec section
43 64 Voice coding / decryption section
44 63 Communications control section
45 62 Wireless section
49 Cordless Handset -- Information Memory
50 71 ID-ROM
52 73 Ringer loudspeaker
53 Sound Recording Playback Section
67 Receiver Loudspeaker
68 Transmission Microphone

[Translation done.]

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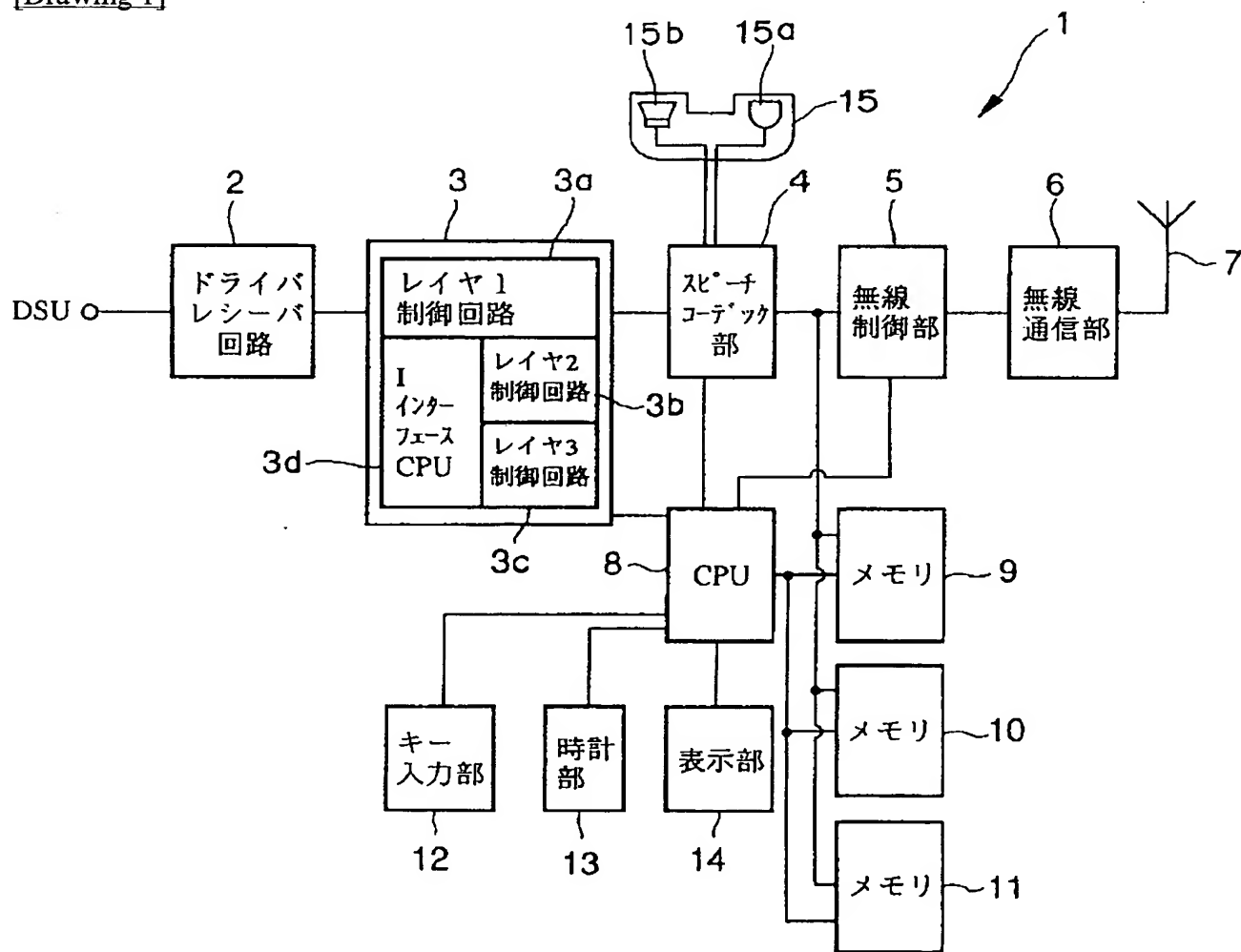
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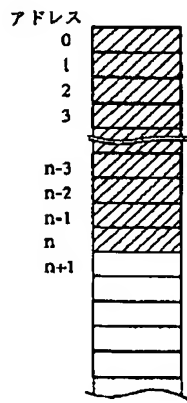
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DRAWINGS

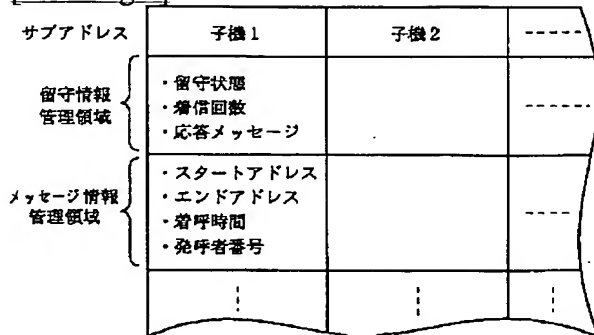
[Drawing 1]



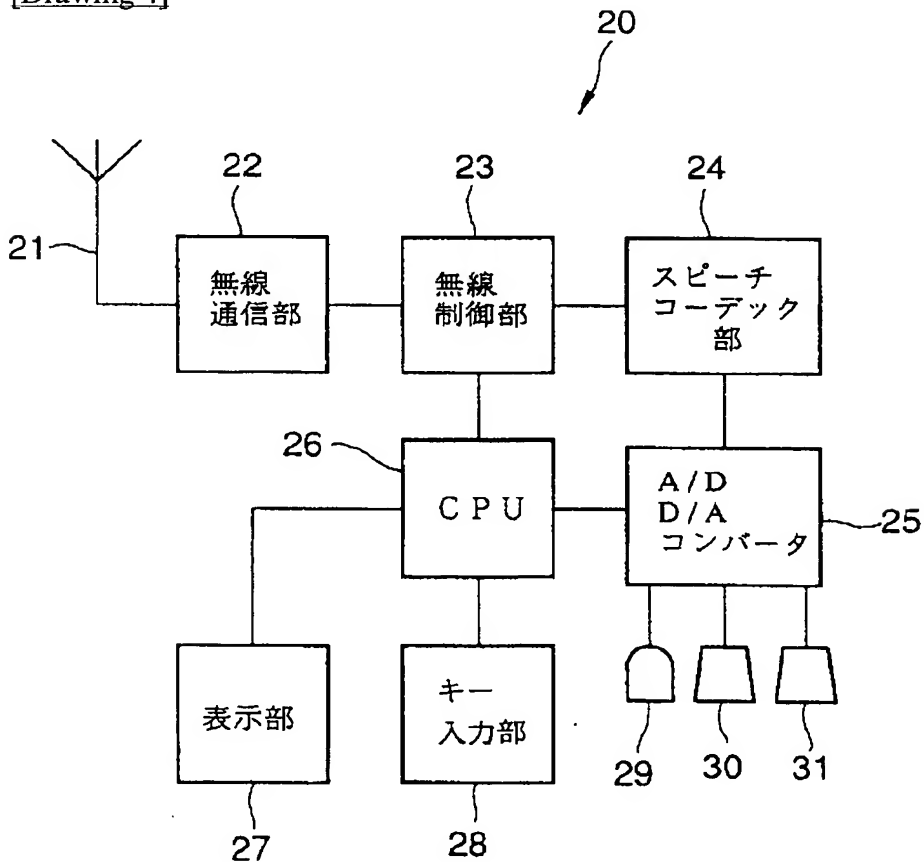
[Drawing 2]



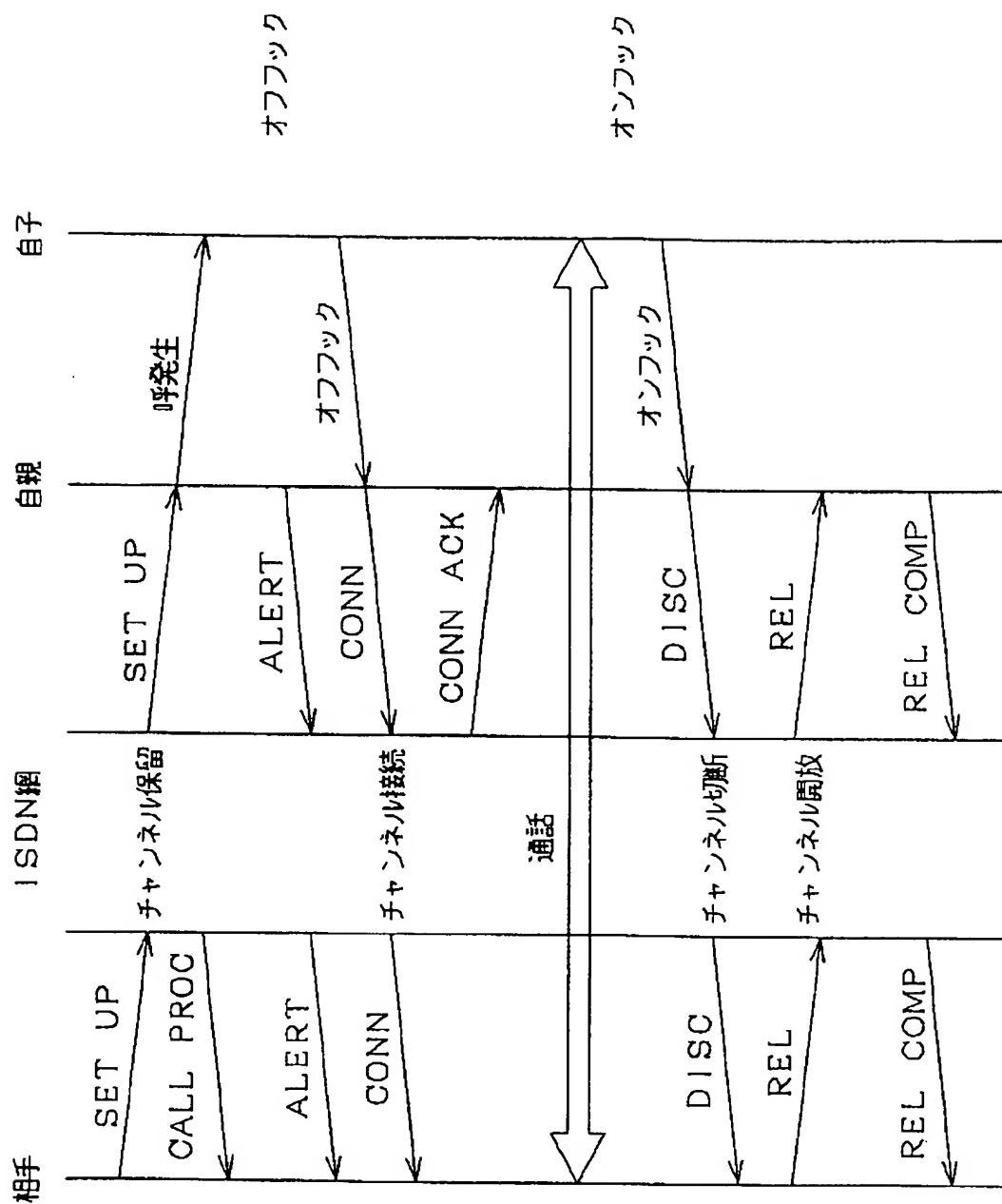
[Drawing 3]



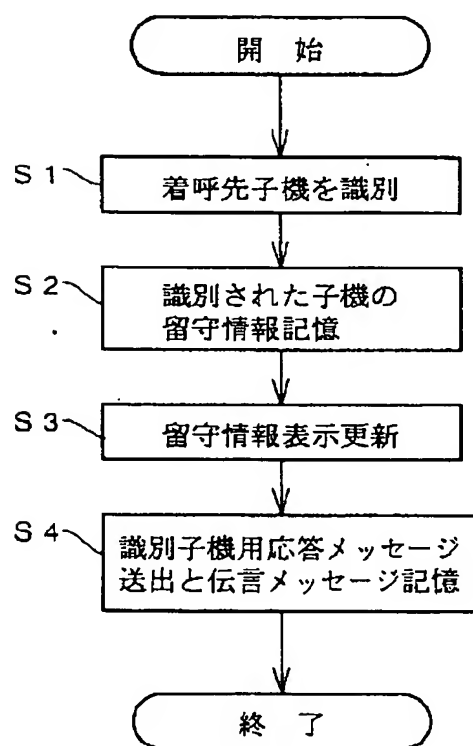
[Drawing 4]



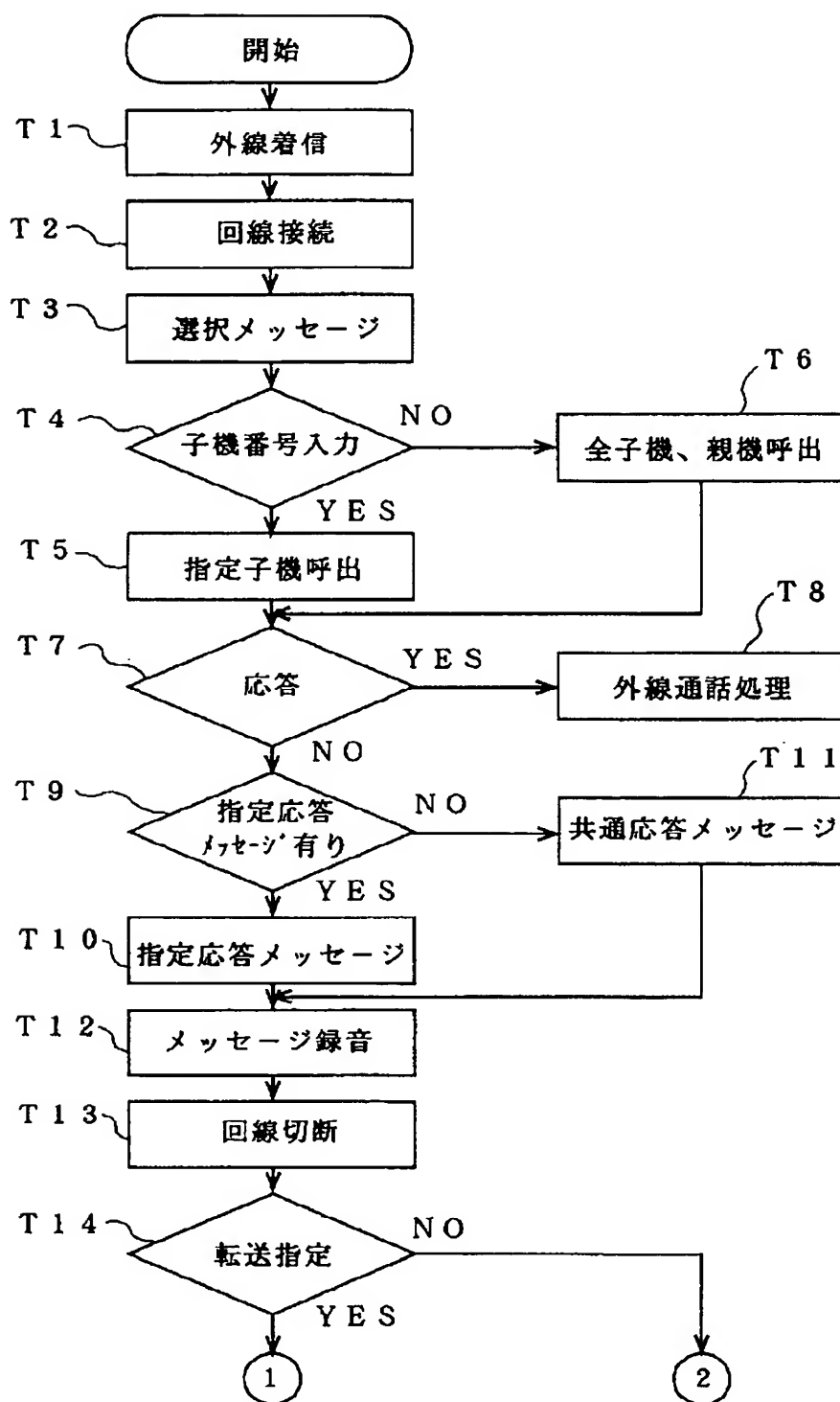
[Drawing 5]



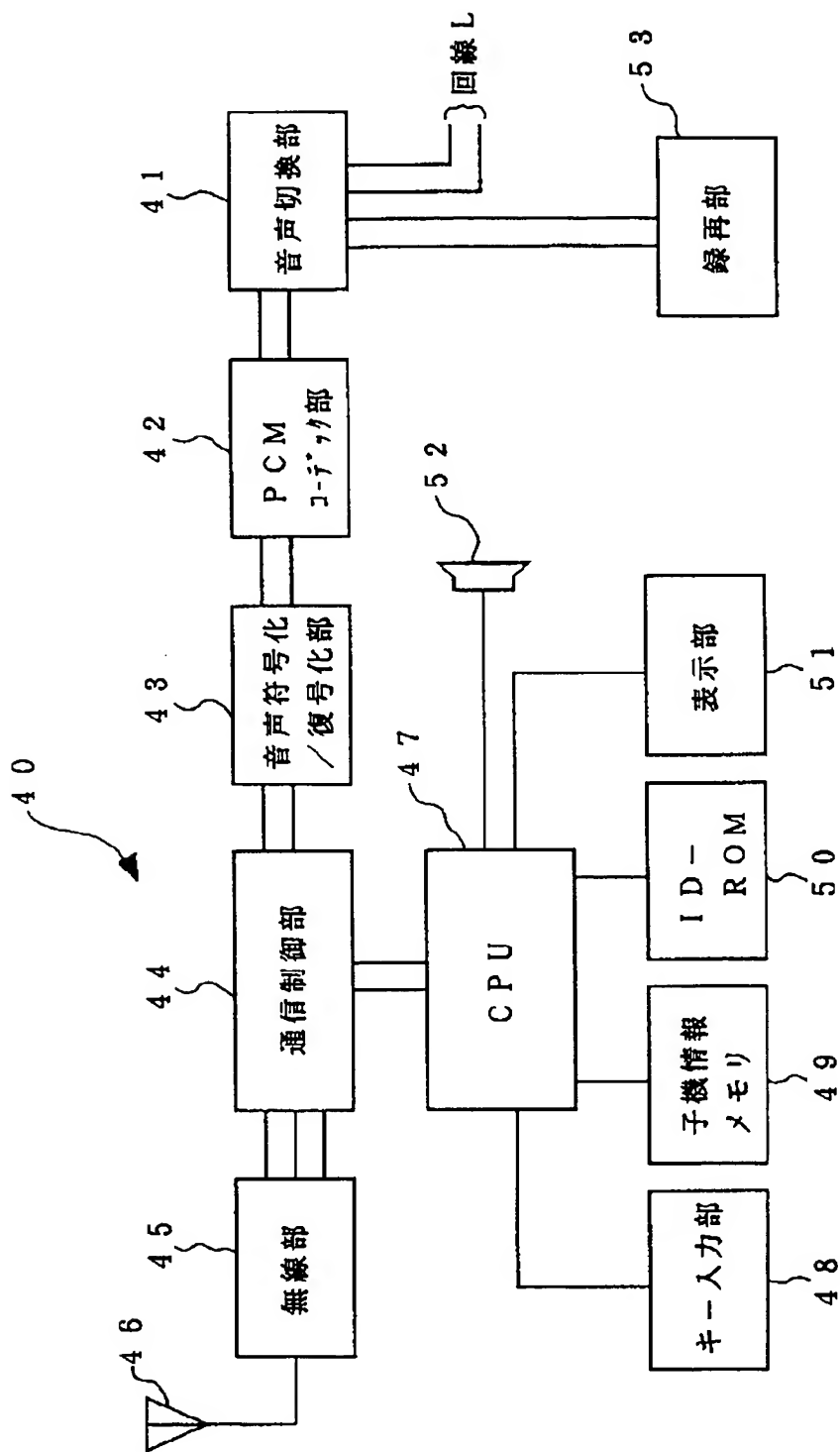
[Drawing 6]



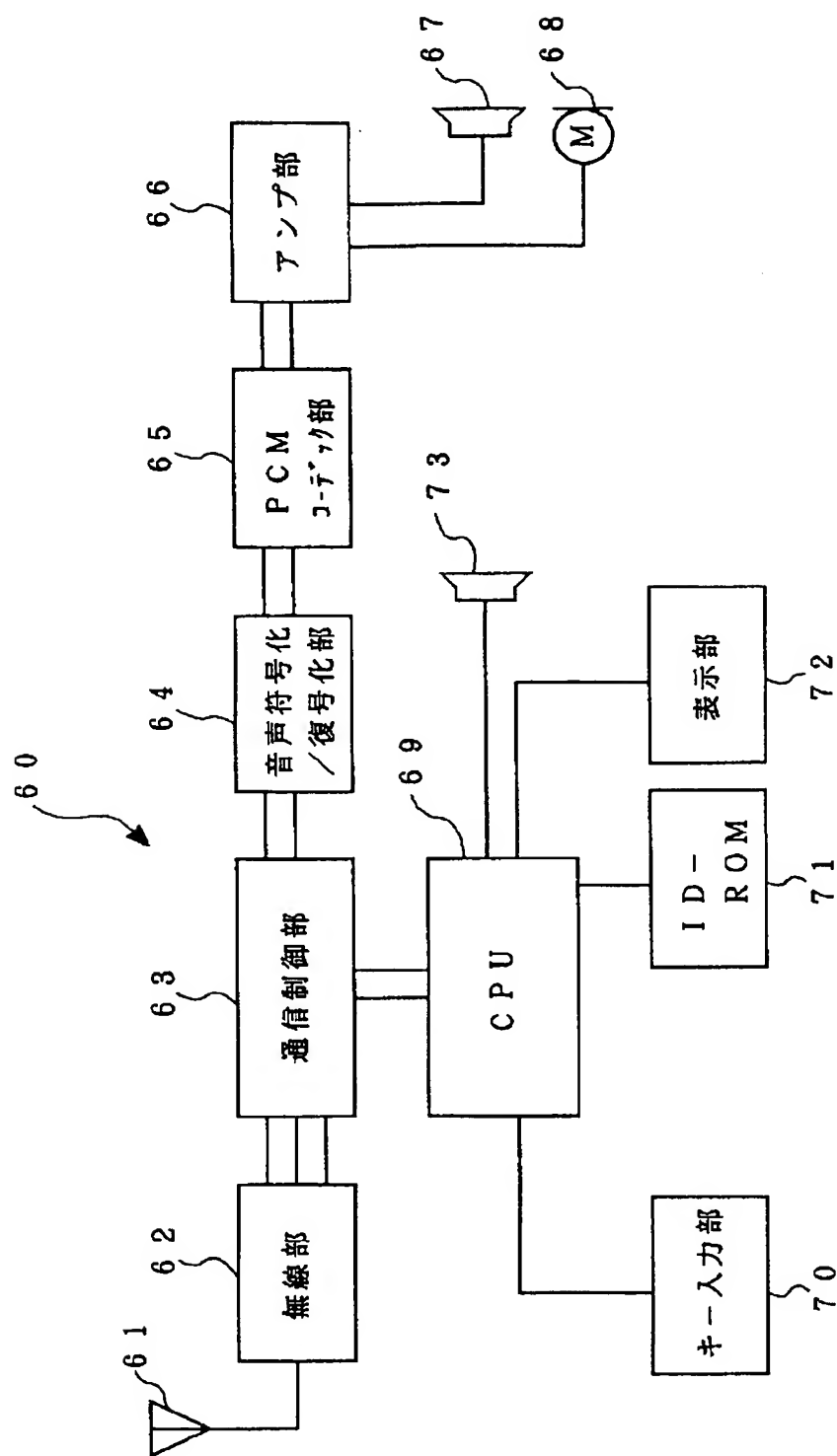
[Drawing 9]



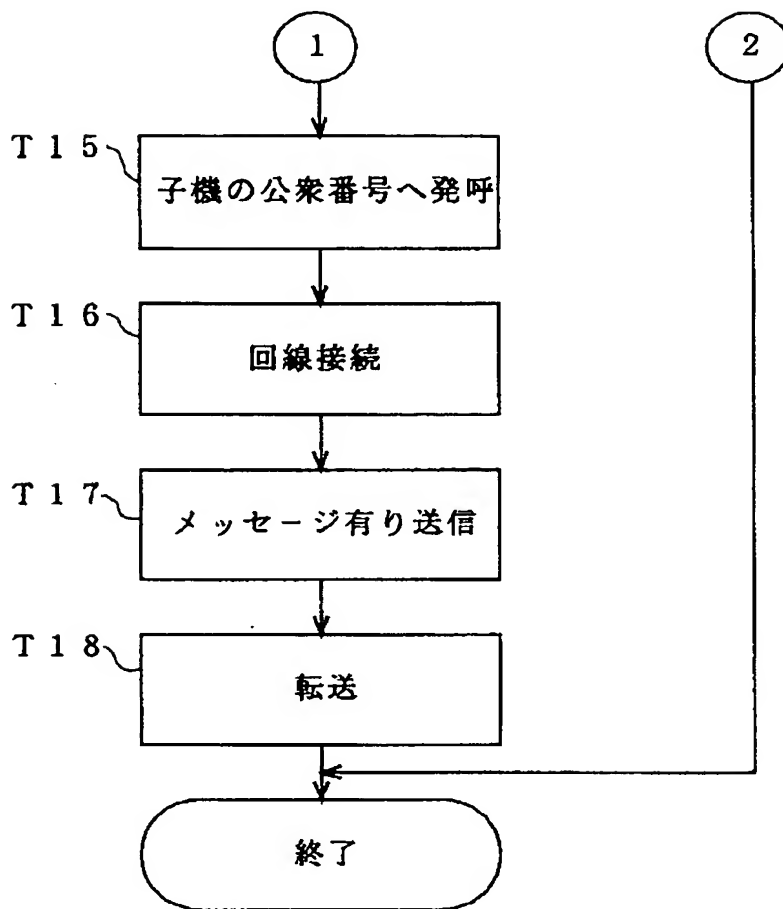
[Drawing 7]



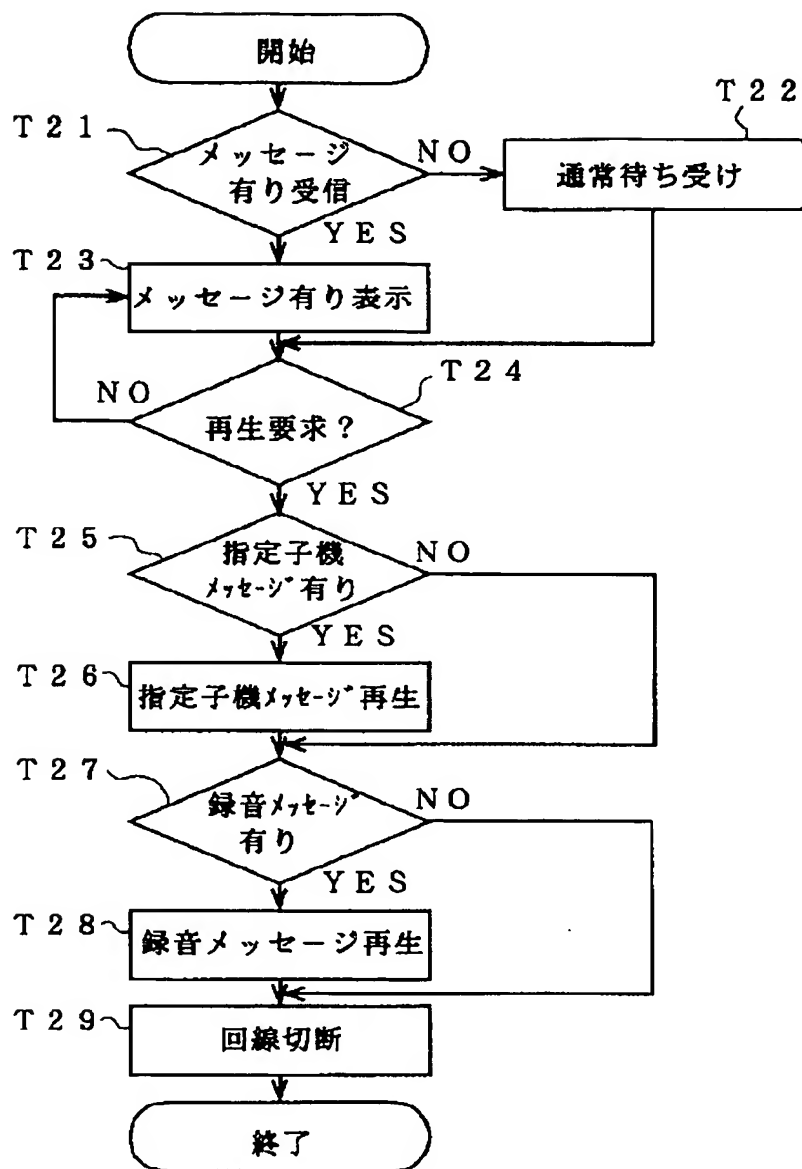
[Drawing 8]



[Drawing 10]



[Drawing 11]



[Translation done.]

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CORRECTION OR AMENDMENT

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 H04B 7/26 109 D
 109 L

[Procedure revision]

[Filing Date] July 18, Heisei 9

[Procedure amendment 1]

[Document to be Amended] Specification

[Item(s) to be Amended] Claim

[Method of Amendment] Modification

[Proposed Amendment]

[Claim(s)]

[Claim 1] In the answering machine machine which has two or more cordless handsets,

A setting means to set up a telephone answering function for said two or more cordless handsets of every,

The answering machine machine characterized by having the control means which controls a telephone answering function based on a setup of this place Sadako machine set up by said setting means when a predetermined cordless handset is specified by arrival of the mail.

[Claim 2] Said setting means is an answering machine machine according to claim 1 characterized by setting up a telephone answering function based on the setting signal from said Sadako Tokoro machine.

[Claim 3] Said setting means is an answering machine machine according to claim 1 characterized by setting up a telephone answering function when the communication link with said Sadako Tokoro machine is impossible.

[Claim 4] An arrival-of-the-mail information storage means to memorize the arrival-of-the-mail information over the cordless handset which is having the telephone answering function set up by said setting means,

The answering machine machine according to claim 1, 2, or 3 characterized by having an information means to report the arrival-of-the-mail information over the Sadako Tokoro machine memorized with this arrival-of-the-mail information storage means.

[Claim 5] Said information means is an answering machine machine according to claim 4 characterized by having a transmitting means to transmit arrival-of-the-mail information to said corresponding cordless handset.

[Claim 6] Said arrival-of-the-mail information is an answering machine machine according to claim 4 or 5 characterized by being a count of arrival of the mail to a place Sadako machine.

[Claim 7] Said arrival-of-the-mail information is an answering machine machine according to claim 4 or 5 characterized by being the addresser information over a place Sadako machine.

[Claim 8] It sets up whether said setting means will be transmitted if a message message is memorized for every cordless handset,

Claim 1 characterized by having a transfer means to transmit this message message to the number about a Sadako Tokoro machine if the message message to a Sadako Tokoro machine is memorized by said control means and the transfer is set up by said setting means thru/or an answering machine machine given in seven.

[Claim 9] Said transfer means is a storage means to memorize the call origination number which corresponds for every cordless handset,

The call origination means which will carry out call origination to the call origination number corresponding to this place Sadako machine memorized by said storage means if the message message to a Sadako Tokoro machine is memorized by said control means,

The answering machine machine according to claim 8 characterized by having a message playback means to reproduce said memorized message message if it connects with a partner terminal based on the call origination of this call origination means.

[Claim 10] the time of a telephone answering function being set up by said setting means at the time of communication link impossible [with a Sadako Tokoro machine] -- this predetermined one -- if the communication link with a cordless handset is attained -- this predetermined one -- the message message is memorized while canceling a setup of the telephone answering function of a cordless handset -- that -- this predetermined one -- the answering machine machine according to claim 3 characterized by what is notified to a cordless handset.

[Claim 11] Said telephone answering function is claim 1 characterized by memorizing a response message for every cordless handset thru/or an answering machine machine given in ten.

[Claim 12] In the answering machine machine which has two or more cordless handsets,

A setting means to set up housesitting mode for every cordless handset,

A response message storage means to memorize a response message for said two or more cordless handsets of every,

A message message storage means to have the storage region which memorizes a message message for said two or more cordless handsets of every,

the cordless handset in a call setup message -- the cordless handset which extracts assignment information -- an assignment information extract means,

the time of arrival of the mail -- said cordless handset -- an assignment information extract means --

the cordless handset in a call setup message -- the cordless handset which extracted assignment information and was this extracted with said setting means, if the cordless handset of assignment information is set as housesitting mode The response message which carries out assignment information correspondence is sent out to this communication line. the extracted this cordless handset which is memorized by said response message storage means while connecting a

communication line -- the cordless handset which this extracted the message message which answers this and is sent from this communication line -- the answering machine machine characterized by having an absence response means to memorize to the storage region of said message message storage means corresponding to assignment information.

[Procedure amendment 2]

[Document to be Amended] Specification

[Item(s) to be Amended] 0005

[Method of Amendment] Modification

[Proposed Amendment]

[0005] On the other hand, what is called a digital cordless telephones system and the so-called PHS (Personal Handy Phone) as one of the systems which enabled use on indoor and the outdoors is considered. As this system feature, it is mentioned that a personal digital assistant (cordless handset) can use it on indoor (domestic or inside of a place of business) or the outdoors. When a personal digital assistant is indoors, this system establishes an indoor base station and an indoor link, the communication link of it is attained, when a personal digital assistant is in the outdoors, it establishes an outdoor base station and an outdoor link, and the communication link of it is attained.

[Procedure amendment 3]

[Document to be Amended] Specification

[Item(s) to be Amended] 0007

[Method of Amendment] Modification

[Proposed Amendment]

[0007] moreover, a PHP system -- the migration machine used by being is available also as a cordless handset of the main phone of the cordless telephone machine equipped with the above-mentioned conventional telephone answering function. Here, there is JP,4-135057,U or JP,5-153232,A as an answering machine machine equipped with two or more conventional cordless handsets. This JP,4-135057,U is a cordless automatic telephone answering set which has two or more migration telephones (cordless handset), and if an absence setup is carried out in fixed telephone (main phone) at the time of arrival of the mail, once it connects a circuit, it will output a response message. If a call and migration telephone do not answer the migration telephone which corresponds based on the ID number inputted from a partner terminal in response to this response message, what records as a message of each addressing to migration telephone is indicated. Moreover, JP,5-153232,A is a cordless automatic telephone answering set which has two or more migration telephones, and if an absence setup is carried out in fixed telephone (main phone) at the time of arrival of the mail, once it connects a circuit, it will output a response message, without outputting a ringer tone. If a call and migration telephone do not answer the migration telephone which corresponds based on the ID number inputted from a partner terminal in response to this response message, what records as a message of each addressing to migration telephone is indicated.

[Procedure amendment 4]

[Document to be Amended] Specification

[Item(s) to be Amended] 0008

[Method of Amendment] Modification

[Proposed Amendment]

[0008]

[Problem(s) to be Solved by the Invention] However, in order to carry out an absence setup in a main phone when carrying out an absence setup if it is in the cordless telephone machine equipped with such a conventional telephone answering function, even the cordless handset which does not need an absence setup had the trouble that an absence setup will be made.

[Procedure amendment 5]

[Document to be Amended] Specification

[Item(s) to be Amended] 0010

[Method of Amendment] Modification

[Proposed Amendment]

[0010] Moreover, when the migration machine used in a PHP system is used as a cordless handset of the main phone of the cordless telephone machine equipped with the conventional telephone answering function, Although the telephone answering function by the conventional main phone is automatically started since the cordless handset as the migration machine is carried out to the outdoors, and the call in to the cordless handset concerned cannot answer, either, when absent There was a trouble that it was unreproducible if it does not return to the area of a main phone in order to reproduce the message message by which the timed-recording sound was carried out. Furthermore, since the child equipment item number number was inputted once connecting a circuit, when specifying a cordless handset if it was in the cordless telephone machine equipped with the

conventional telephone answering function, there was a trouble of actuation with a partner terminal having been troublesome and being charged during selection. Furthermore, if it was in the cordless telephone machine equipped with the conventional telephone answering function, there was a trouble that absence information, such as a count of arrival of the mail for every cordless handset and an addresser number, could not be reported, at the time of an absence setup.

[Procedure amendment 6]

[Document to be Amended] Specification

[Item(s) to be Amended] 0012

[Method of Amendment] Modification

[Proposed Amendment]

[0012]

[Means for Solving the Problem] It connects with a communication line, and in the answering machine machine which has two or more cordless handsets, invention according to claim 1 is characterized by having the control means which controls a telephone answering function based on a setup of this place Sadako machine set up by said setting means, when a predetermined cordless handset is specified as a setting means to set up a telephone answering function for said two or more cordless handsets of every, by arrival from said communication line.

[Procedure amendment 7]

[Document to be Amended] Specification

[Item(s) to be Amended] 0013

[Method of Amendment] Modification

[Proposed Amendment]

[0013] Moreover, said setting means may be made to be characterized by setting up a telephone answering function based on the setting signal from said Sadako Tokoro machine so that it may indicate to claim 2 in this case.

[Procedure amendment 8]

[Document to be Amended] Specification

[Item(s) to be Amended] 0014

[Method of Amendment] Modification

[Proposed Amendment]

[0014] Furthermore, when the communication link with said Sadako Tokoro machine is impossible for said setting means, it may be made to be characterized by setting up a telephone answering function, so that it may indicate to claim 3. Moreover, it may be made to be characterized by having an arrival-of-the-mail information storage means to memorize the arrival-of-the-mail information over the cordless handset which is having the telephone answering function set up by said setting means, and an information means to report the arrival-of-the-mail information over the Sadako Tokoro machine memorized with this arrival-of-the-mail information storage means so that it may indicate to claim 4. Furthermore, said information means may be made to be characterized by having a transmitting means to transmit arrival-of-the-mail information to said corresponding cordless handset so that it may indicate to claim 5. Moreover, said arrival-of-the-mail information may be made to be characterized by being a count of arrival of the mail to a place Sadako machine so that it may indicate to claim 6. Furthermore, said arrival-of-the-mail information may be made to be characterized by being the addresser information over a place Sadako machine so that it may indicate to claim 7. Moreover, when it sets up whether it will transmit if a message message is memorized for every cordless handset, and the message message to a Sadako Tokoro machine is memorized by said control means and the transfer is set up by said setting means, said setting means may be made to be characterized by having a transfer means to transmit this message message, so that it may indicate to claim 8. So that it may indicate to claim 9 furthermore, said transfer means A storage means to memorize the call origination number which corresponds for every cordless handset, and the call origination means which will carry out call origination to the call origination number corresponding to this place Sadako machine memorized by said storage means if the message message to a Sadako Tokoro machine is memorized by said control means, When it connects with a partner terminal based on the call origination of this call origination means, it may be made to be characterized by having a message playback means to reproduce said memorized message message. Moreover, while canceling a setup of the telephone answering function of this place Sadako machine if the

communication link with this place Sadako machine is attained when a telephone answering function is set up by said setting means at the time of communication link impossible [with a Sadako Tokoro machine] so that it may indicate to claim 10, it may be made to be characterized by notifying that to this place Sadako machine that the message message is memorized. Furthermore, said telephone answering function may be made to be characterized by memorizing a response message for every cordless handset so that it may indicate to claim 11. According to invention according to claim 12, this invention is characterized by the answering machine machine which has two or more cordless handsets possessing the following. A setting means to set up housesitting mode for every cordless handset A response message storage means to memorize a response message for said two or more cordless handsets of every A message message storage means to have the storage region which memorizes a message message for said two or more cordless handsets of every the cordless handset in a call setup message -- the cordless handset which extracts assignment information -- with an assignment information extract means the time of arrival of the mail -- said cordless handset -- an assignment information extract means -- the cordless handset in a call setup message -- the cordless handset which extracted assignment information and was this extracted with said setting means, if the cordless handset of assignment information is set as housesitting mode The response message which carries out assignment information correspondence is sent out to this communication line. the extracted this cordless handset which is memorized by said response message storage means while connecting a communication line -- the cordless handset which this extracted the message message which answers this and is sent from this communication line -- an absence response means to memorize to the storage region of said message message storage means corresponding to assignment information

[Procedure amendment 9]

[Document to be Amended] Specification

[Item(s) to be Amended] 0015

[Method of Amendment] Modification

[Proposed Amendment]

[0015]

[Function] According to invention according to claim 1 or 12, in the answering machine machine which has two or more cordless handsets, since an absence setup can be carried out for every cordless handset, an absence setup only of the target cordless handset can be carried out. Moreover, since a predetermined cordless handset can be specified at the time of arrival of the mail (sub-address etc.), accounting in a selection period does not have actuation with a partner terminal troublesomely, either.

[Procedure amendment 10]

[Document to be Amended] Specification

[Item(s) to be Amended] 0016

[Method of Amendment] Modification

[Proposed Amendment]

[0016] moreover -- since an absence setup is carried out to the arrival to each cordless handset like claim 2 in this case based on the setting signal from each cordless handset -- a user's volition -- self-- - only a cordless handset can carry out an absence setup.

[Procedure amendment 11]

[Document to be Amended] Specification

[Item(s) to be Amended] 0017

[Method of Amendment] Modification

[Proposed Amendment]

[0017] Moreover, like claim 3, since an absence setup is carried out when a predetermined cordless handset cannot communicate, when a cordless handset separates from the area of a main phone, or when the cordless handset is turned off, only a predetermined cordless handset can carry out an absence setup automatically.

[Procedure amendment 12]

[Document to be Amended] Specification

[Item(s) to be Amended] 0018

[Method of Amendment] Modification

[Proposed Amendment]

[0018] furthermore, claim 4, claim 6, or claim 7 -- like -- each -- since the arrival-of-the-mail information at the time of an absence setup is reported for every cordless handset -- arrival-of-the-mail information, such as a count of arrival of the mail for every cordless handset, and an addresser number, -- each -- it can report for every cordless handset.

[Procedure amendment 13]

[Document to be Amended] Specification

[Item(s) to be Amended] 0019

[Method of Amendment] Modification

[Proposed Amendment]

[0019] Moreover, like claim 5, when reporting arrival-of-the-mail information, it can report, without the 3rd person getting to know arrival-of-the-mail information certainly by transmitting this arrival-of-the-mail information to a cordless handset.

[Procedure amendment 14]

[Document to be Amended] Specification

[Item(s) to be Amended] 0020

[Method of Amendment] Modification

[Proposed Amendment]

[0020] furthermore -- if a message message is memorized by carrying out a transfer setup of the message message memorized for every predetermined cordless handset for every cordless handset like claim 8 or claim 9 -- a predetermined cordless handset -- or -- this -- a message message is transmitted to the number about a cordless handset, and a message message can be heard even if it does not return to the area of a main phone one by one. moreover, claim 10 -- like -- predetermined - the time of an absence setup of [at the time of communication link impossible with a cordless handset] being carried out -- this predetermined one -- that the message message is remembered to be while canceling an absence setup, if the communication link with a cordless handset is attained -- this predetermined one -- since it notifies to a cordless handset, discharge of a setup and the check of message message existence can be performed simply. Furthermore, like claim 11, since a response message is memorized for every cordless handset, a different response message for every cordless handset can be outputted.

[Procedure amendment 15]

[Document to be Amended] Specification

[Item(s) to be Amended] 0127

[Method of Amendment] Modification

[Proposed Amendment]

[0127] Moreover, in a main phone 40, when transfer assignment is not made, and a recorded message is gone home, it will be heard. A recorded message can be checked by carrying out processing explained by above-mentioned drawing 11 also in this case. That is, when the LCCH super frame transmitted from a main phone 40 is able to be established, it notifies that there is a **** message by this LCCH super frame to a cordless handset 60 (it corresponds to step T21 of drawing 11). After receiving this, a main phone 40 and a link are established and the same processing as the following is carried out. Thereby, even if transfer assignment of a recorded message is not made, a recorded message can be checked after going home.

[Procedure amendment 16]

[Document to be Amended] Specification

[Item(s) to be Amended] 0128

[Method of Amendment] Modification

[Proposed Amendment]

[0128]

[Effect of the Invention] According to invention according to claim 1 or 12, in the answering machine machine which has two or more cordless handsets, since an absence setup can be carried out for every cordless handset, an absence setup only of the target cordless handset can be carried out. Moreover, since a predetermined cordless handset can be specified at the time of arrival of the mail (sub-address etc.), accounting in a selection period does not have actuation with a partner terminal troublesomely, either. moreover -- since an absence setup is carried out to the arrival to each

cordless handset like claim 2 in this case based on the setting signal from each cordless handset -- a user's volition -- self--- only a cordless handset can carry out an absence setup. Moreover, like claim 3, since an absence setup is carried out when a predetermined cordless handset cannot communicate, when a cordless handset separates from the area of a main phone, or when the cordless handset is turned off, only a predetermined cordless handset can carry out an absence setup automatically. furthermore, claim 4, claim 6, or claim 7 -- like -- each -- since the arrival-of-the-mail information at the time of an absence setup is reported for every cordless handset -- arrival-of-the-mail information, such as a count of arrival of the mail for every cordless handset, and an addresser number, -- each -- it can report for every cordless handset. Moreover, like claim 5, when reporting arrival-of-the-mail information, it can report, without the 3rd person getting to know arrival-of-the-mail information certainly by transmitting this arrival-of-the-mail information to a cordless handset. furthermore -- if a message message is memorized by carrying out a transfer setup of the message message memorized for every predetermined cordless handset for every cordless handset like claim 8 or claim 9 -- a predetermined cordless handset -- or -- this -- a message message is transmitted to the number about a cordless handset, and a message message can be heard even if it does not return to the area of a main phone one by one. moreover, claim 10 -- like -- predetermined -- the time of an absence setup of [at the time of communication link impossible with a cordless handset] being carried out -- this predetermined one -- that the message message is remembered to be while canceling an absence setup, if the communication link with a cordless handset is attained -- this predetermined one -- since it notifies to a cordless handset, discharge of a setup and the check of message message existence can be performed simply. Furthermore, like claim 11, since a response message is memorized for every cordless handset, a different response message for every cordless handset can be outputted.

[Translation done.]

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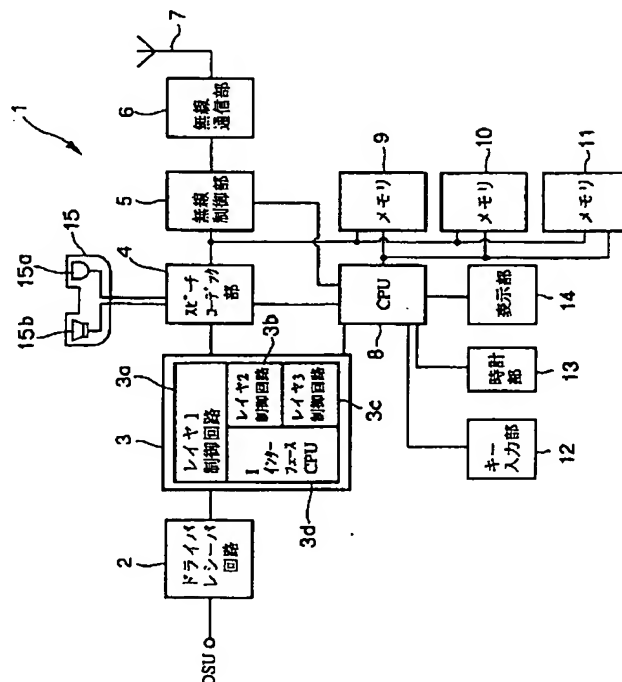
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(54) 【発明の名称】 留守番電話機

(57) 【要約】

【目的】 本発明は、留守番機能を有する親子電話機において親機に子機毎の留守番機能を持たせることを目的とする。

【構成】 CPU 8は、子機から無線送信される留守モード設定情報及び子機サブアドレス情報を受信すると、その受信情報をメモリ 10内に子機別留守情報として登録し、この留守情報を管理することにより複数の子機毎に留守番機能を実現する。CPU 8は、留守登録されている子機がある場合に、着呼があると、サブアドレス情報を検出し、メモリ 10に登録した留守登録情報を参照して留守登録中の子機サブアドレスと一致すると、I インターフェイス制御部 3に呼設定要求を出力し、通話路が確立され、メモリ 10に予め記憶されている留守応答メッセージを読み出してI インターフェイス制御部 3に出力し、発呼側に留守である旨を通知し、伝言音声信号を受信すると、子機別サブアドレス毎にメモリ 9内に設定する記憶領域に記憶する。



【特許請求の範囲】

【請求項 1】親機との間で送・受信により通信制御信号及び送・受話信号を授受して親機を介して外部の電話機との間で通話を行う子機と、

回線に接続し、この回線を介して外部の電話機と子機との間で通信制御信号及び送・受話信号を送・受信するとともに、留守番機能により留守中に外部の電話機から受信する受話信号を記憶する親機と、

を備えた留守番電話機において、

上記子機は、

自己の子機識別情報を記憶する記憶手段と、

自己が留守中である旨の情報及び上記留守中に親機が記憶した受信情報の送信を要求する旨の情報を設定する情報設定手段と、

この情報設定手段により設定される各情報を上記記憶手段に記憶した自己の子機識別情報とともに上記親機に送信する送信手段と、

この送信手段により留守中の受信情報の送信を要求したとき、上記親機から送信される受話信号を再生する再生手段と、

を具備し、

上記親機は、

上記子機識別情報に対応して子機別に受信情報を記憶する記憶領域を設定する受信情報記憶手段と、

上記子機から設定送信される留守中である旨の情報及び子機識別情報を受信すると、この受信情報により留守中の子機を受信情報記憶手段に設定される当該子機の記憶領域に登録し、外部の電話機からの着呼に際して子機識別情報を受信すると、該留守登録した受信情報により子機を識別し、受信情報記憶手段に設定される当該子機の記憶領域に受話信号を記憶する制御手段と、

上記子機から設定送信される留守中の受信情報の送信要求情報及び子機識別情報を受信すると、上記留守登録した受信情報により子機を識別し、受信情報記憶手段の当該子機の記憶領域から受話信号を読み出し、当該子機に送信する送信手段と、

を具備したことを特徴とする留守番電話機。

【請求項 2】上記親機は、上記留守登録した子機別に外部の電話機からの着信回数を計数する計数手段を設け、上記制御手段は、この計数手段により計数される子機別の着信回数情報を上記受話信号とともに上記受信情報記憶手段に設定される当該子機の記憶領域に記憶し、上記送信手段は、受話信号を送信する際に、当該子機の着信回数情報を付加して無線信号により子機に送信し、上記子機は、この親機から受話信号とともに送信される着信回数情報を通知する通知手段を設けたことを特徴とする請求項 1 記載の留守番電話機。

【請求項 3】回線に接続し、この回線を介して外部の電話機と子機との間で通信制御信号及び送・受話信号を送・受信するとともに、留守番機能により留守中に外部の

電話機から受信する受話信号を記憶する親機と、

親機との間で送・受信により通信制御信号及び送・受話信号を授受して親機を介して外部の電話機との間で通話を行う子機と、

を備えた留守番電話機において、

上記親機は、

留守中の上記外部の電話機からの着信時に応答する応答メッセージを上記子機別に記憶する応答情報記憶手段と、

10 上記子機別に受信情報を記憶する記憶領域を設定する受信情報記憶手段と、

上記外部の電話機からの着信に際して送信される子機指定情報に応じて当該指定子機に着信を通知し、当該着信通知に対する指定子機からの応答がない場合に、前記応答情報記憶手段に記憶されている当該指定子機の応答メッセージにより外部の電話機に応答して、当該指定子機が留守である旨を通知し、外部の電話機から受信したメッセージを前記受信情報記憶手段に設定される当該子機の記憶領域に記憶する制御手段と、

20 この制御手段により留守中に記憶した受信メッセージを当該指定子機に送信する送信手段と、

を具備し、

上記子機は、

上記親機から送信される留守中の受信メッセージを受信する受信手段と、

この受信手段により受信した受信メッセージを再生する再生手段と、

を具備したことを特徴とする留守番電話機。

【発明の詳細な説明】

30 【0001】

【産業上の利用分野】本発明は、複数の子機を有する留守番電話機に係り、詳細には、子機毎の留守番機能を有する留守番電話機に関する。

【0002】

【従来の技術】近時、親機と子機を備えたコードレス電話機が多く普及しており、コードレス電話機は、公衆回線網に接続して外部の電話機と授受する通話信号を所定の無線信号に変換してで送・受信する機能を有する親機と、親機との間で通話信号を送・受信する子機とを備え、親機から所定距離離れて子機から自由に通話できるため、親機 1 台に対して子機を複数台備え、家族各人がそれぞれの部屋で子機によりコードレスで通話可能としている。

【0003】また、親機側で留守番機能を備えたものが多く普及しており、留守中に外線から着呼があると、所定のメッセージを発呼側に送信し、留守の旨と伝言を録音する旨を通知して伝言内容を記憶するようにしている。この親機の有する留守番機能としては、回線への着信に対して特定時間の間に応答（ユーザーのオフフック操作）がない場合に親機が自動的に留守番機能に移行す

る機能や、その留守番機能の起動後応答中に送信者が暗証番号を使って個別に留守録を行わせる機能等がある。

【0004】このようなコードレス電話機としてアナログコードレス電話システム及びデジタルコードレス電話システムがある。アナログコードレス電話システムは、通常屋内でのみの使用が提供され、屋内の親機と子機とでリンクを確立して通信を可能とする。

【0005】これに対して、屋内及び屋外での使用を可能としたシステムの1つとしてデジタルコードレス電話システム、いわゆるPHP (Personal Handy Phone) と呼ばれるものが考えられている。このシステムの特徴として、携帯端末(子機)が屋内(家庭内または事業所内)あるいは屋外で利用できることが挙げられる。このシステムは、携帯端末が屋内にあるときは屋外の基地局とリンクを確立して通信が可能となる。

【0006】すなわち、携帯端末は、制御チャンネルにおいて、基地局(屋内及び屋外)から定期的に送信されてくる信号(制御用のスロット)により基地局とリンクが確立できるか否かを認識し(LCHスーパーフレームが確立できるか否かを確認する)、基地局とこのリンクが確立できれば基地局と通信が可能な状態となる。また、PHPシステムでは、携帯端末の移動により、ある基地局の通信圏内から外れて、その基地局とのリンクが確立できなくなって、移動先が別の基地局の通信圏内であるとすると、その別の基地局とリンクを確立するために別の基地局に対して位置登録処理を行える。これにより、ある基地局の通信圏外に携帯端末が移動しても、移動先が別の基地局の通信圏内であれば、その基地局との間のリンクが確立可能なシステムとなっている。

【0007】また、PHPシステムにおいて利用される移動機は、上記従来の留守番機能を備えたコードレス電話機の親機の子機としても利用可能である。

【0008】

【発明が解決しようとする課題】しかしながら、このような従来の留守番機能を備えたコードレス電話機にあっては、親機が複数の子機を有する場合、各子機に対応した留守番用メモリはなく親機のメモリに一括して記憶されるようになっていたため、子機を指定した着呼があっても、その子機別に着呼情報や伝言音声記憶されないため、例えば、家庭内で複数の子機を利用するユーザーは、個人宛に送信された伝言を区別して聞くことができないという問題点があった。

【0009】このような問題は、親機と子機とが有線で接続されている親子電話機においても生じる問題である。

【0010】また、PHPシステムにおいて利用される移動機が、従来の留守番機能を備えたコードレス電話機の親機の子機として利用される場合、その移動機としての子機が屋外に持ち出されて不在の場合は、当該子機に対する着呼があっても応答できないため、従来の親機に

よる留守番機能が自動的に起動されるという状況が予想されるが、従来の留守番用メモリでは子機別に着呼情報や伝言音声記憶されないため、移動機としての子機に送信された伝言を区別して聞くことができないという問題が発生することは明らかである。

【0011】本発明の課題は、複数の子機を有する留守番電話機において子機毎に留守番機能を持たせるようにすることである。

【0012】

【課題を解決するための手段】請求項1記載の発明は、親機との間で送・受信により通信制御信号及び送・受信信号を授受して親機を介して外部の電話機との間で通話を行う子機と、回線に接続し、この回線を介して外部の電話機と子機との間で通信制御信号及び送・受信信号を送・受信するとともに、留守番機能により留守中に外部の電話機から受信する受信信号を記憶する親機と、を備えた留守番電話機において、上記子機は、自己の子機識別情報を記憶する記憶手段と、自己が留守中である旨の情報及び上記留守中に親機が記憶した受信情報の送信を要求する旨の情報を設定する情報設定手段と、この情報設定手段により設定される各情報を上記記憶手段に記憶した自己の子機識別情報とともに上記親機に送信する送信手段と、この送信手段により留守中の受信情報の送信を要求したとき、上記親機から送信される受信信号を再生する再生手段と、を具備し、上記親機は、上記子機識別情報に対応して子機別に受信情報を記憶する記憶領域を設定する受信情報記憶手段と、上記子機から設定送信される留守中である旨の情報及び子機識別情報を受信すると、この受信情報により留守中の子機を受信情報記憶手段に設定される当該子機の記憶領域に登録し、外部の電話機からの着呼に際して子機識別情報を受信すると、該留守登録した受信情報により子機を識別し、受信情報記憶手段に設定される当該子機の記憶領域に受信信号を記憶する制御手段と、上記子機から設定送信される留守中の受信情報の送信要求情報及び子機識別情報を受信すると、上記留守登録した受信情報により子機を識別し、受信情報記憶手段の当該子機の記憶領域から受信信号を読み出し、当該子機に送信する送信手段と、を具備したことを特徴としている。

【0013】また、この場合、請求項2に記載するように、上記親機は、上記留守登録した子機別に外部の電話機からの着信回数を計数する計数手段を設け、上記制御手段は、この計数手段により計数される子機別の着信回数情報を上記受信信号とともに上記受信情報記憶手段に設定される当該子機の記憶領域に記憶し、上記送信手段は、受信信号を送信する際に、当該子機の着信回数情報を付加して無線信号により子機に送信し、上記子機は、この親機から受信信号とともに送信される着信回数情報を通知する通知手段を設けるようにしてもよい。

【0014】請求項3記載の発明によれば、回線に接続

し、この回線を介して外部の電話機と子機との間で通信制御信号及び送・受話信号を送・受信するとともに、留守番機能により留守中に外部の電話機から受信する受話信号を記憶する親機と、親機との間で送・受信により通信制御信号及び送・受話信号を授受して親機を介して外部の電話機との間で通話を行う子機と、を備えた留守番電話機において、上記親機は、留守中の上記外部の電話機からの着信時に応答する応答メッセージを上記子機別に記憶する応答情報記憶手段と、上記子機別に受信情報を記憶する記憶領域を設定する受信情報記憶手段と、上記外部の電話機からの着信に際して送信される子機指定情報に応じて当該指定子機に着信を通知し、当該着信通知に対する指定子機からの応答がない場合に、前記応答情報記憶手段に記憶されている当該指定子機の応答メッセージにより外部の電話機に応答して、当該指定子機が留守である旨を通知し、外部の電話機から受信したメッセージを前記受信情報記憶手段に設定される当該子機の記憶領域に記憶する制御手段と、この制御手段により留守中に記憶した受信メッセージを当該指定子機に送信する送信手段と、を具備し、上記子機は、上記親機から送信される留守中の受信メッセージを受信する受信手段と、この受信手段により受信した受信メッセージを再生する再生手段と、を具備したことを特徴としている。

【 0 0 1 5 】

【作用】請求項 1 記載の発明によれば、親機との間で送・受信により通信制御信号及び送・受話信号を授受して親機を介して外部の電話機との間で通話を行う子機と、回線に接続し、この回線を介して外部の電話機と子機との間で通信制御信号及び送・受話信号を送・受信するとともに、留守番機能により留守中に外部の電話機から受信する受話信号を記憶する親機と、を備えた留守番電話機において、上記子機では、記憶手段に自己の子機識別情報が記憶され、情報設定手段により自己が留守中である旨の情報及び上記留守中に親機が記憶した受信情報の送信を要求する旨の情報が設定され、送信手段により情報設定手段により設定される各情報が上記記憶手段に記憶した自己の子機識別情報とともに上記親機に送信され、この送信手段により留守中の受信情報の送信を要求したとき、上記親機から送信される受話信号が再生手段により再生され、上記親機では、受信情報記憶手段により上記子機識別情報に対応して子機別に受信情報を記憶する記憶領域が設定され、制御手段により上記子機から設定送信される留守中である旨の情報及び子機識別情報を受信すると、この受信情報により留守中の子機が受信情報記憶手段に設定される当該子機の記憶領域に登録され、外部の電話機からの着呼に際して子機識別情報を受信すると、該留守登録した受信情報により子機が識別され、受信情報記憶手段に設定される当該子機の記憶領域に受話信号が記憶され、上記子機から設定送信される留守中の受信情報の送信要求情報及び子機識別情報を受信

すると、上記留守登録した受信情報により子機が識別され、送信手段により受信情報記憶手段の当該子機の記憶領域から受話信号が読み出されて当該子機に送信される。

【 0 0 1 6 】 また、この場合、請求項 2 記載の発明によれば、上記親機では、上記留守登録した子機別に外部の電話機からの着信回数を計数する計数手段が設けられ、上記制御手段は、この計数手段により計数される子機別の着信回数情報が上記受話信号とともに上記受信情報記憶手段に設定される当該子機の記憶領域に記憶され、上記送信手段は、受話信号を送信する際に、当該子機の着信回数情報を付加して子機に送信され、上記子機は、この親機から受話信号とともに送信される着信回数情報が通知手段により通知される。

【 0 0 1 7 】 したがって、親機が複数の子機の留守状態を管理し、留守中に外線から受信する着呼情報及び受話音声を、留守登録された子機別に記憶することができ、子機毎に留守番機能を持たせることができ、留守番機能を有する親子電話機における複数の子機の各々に親機と同等の留守番機能を持たせることができる。

【 0 0 1 8 】 また、子機別に留守中の着呼情報を明確に表示あるいは音声で通知することにより、家庭内にあっても個人宛の用件を明確にすることができる。

【 0 0 1 9 】 請求項 3 記載の発明によれば、回線に接続し、この回線を介して外部の電話機と子機との間で通信制御信号及び送・受話信号を送・受信するとともに、留守番機能により留守中に外部の電話機から受信する受話信号を記憶する親機と、親機との間で送・受信により通信制御信号及び送・受話信号を授受して親機を介して外部の電話機との間で通話を行う子機と、を備えた留守番電話機において、上記親機では、留守中の上記外部の電話機からの着信時に応答する応答メッセージが上記子機別に応答情報記憶手段に記憶され、上記子機別に受信情報を記憶する記憶領域が受信情報記憶手段に設定され、制御手段により上記外部の電話機からの着信に際して送信される子機指定情報に応じて当該指定子機に着信が通知され、当該着信通知に対する指定子機からの応答がない場合に、前記応答情報記憶手段に記憶されている当該指定子機の応答メッセージにより外部の電話機に応答され、当該指定子機が留守である旨が通知され、外部の電話機から受信したメッセージが前記受信情報記憶手段に設定される当該子機の記憶領域に記憶されると、送信手段により受信メッセージが当該指定子機に送信され、上記子機では、上記親機から送信される留守中の受信メッセージが受信手段により受信されると、再生手段により受信した受信メッセージが再生される。

【 0 0 2 0 】 したがって、宅内子機をディジタルコードレス電話機等とした場合に、個人が子機を屋外で移動電話機として利用したとしても、宅内コードレス電話機の留守番機能を屋外の子機に提供することができる。

【 0 0 2 1 】

【実施例】以下、図 1 ～ 図 6 を参照して実施例を説明する。

【 0 0 2 2 】図 1 ～ 図 6 は、請求項 1 及び 2 記載の発明の留守番電話機を I S D N (サービス総合デジタル網) に対応するコードレス電話機に適用した一実施例を示す図である。

【 0 0 2 3 】まず、構成を説明する。

【 0 0 2 4 】図 1 は、コードレス電話機の親機 1 のブロック構成図である。この図において、親機 1 は、ドライバ／レシーバ回路 2、I インターフェイス制御部 3、スピーチコーデック部 4、無線制御部 5、無線通信部 6、アンテナ 7、CPU 8、メモリ 9 ～ 1 1、キー入力部 1 2、時計部 1 3、表示部 1 4 及びハンドセット 1 5 により構成される。

【 0 0 2 5 】ドライバ／レシーバ回路 2 は、図外の I S D N に接続する加入者線終端装置 (以下、D S U という) に接続し、この D S U を介して入力される受信信号を I インターフェイス部 3 に出力するとともに、I インターフェイス制御部 3 から入力される送信信号を D S U に出力する。

【 0 0 2 6 】I インターフェイス制御部 3 は、I S D N の O S I (開放形システム間相互接続) 基本参照モデルにおけるレイヤ 1 の通信制御を実行するレイヤ 1 制御回路 3 a と、I S D N の O S I 基本参照モデルにおけるレイヤ 2 の通信制御を実行するレイヤ 2 制御回路 3 c と、I S D N の O S I 基本参照モデルにおけるレイヤ 3 の通信制御を実行するレイヤ 3 制御回路 3 c と、C C I T T (国際電信電話諮問委員会) の I 勧告に基づいて I S D N の I インターフェイス機能を実現するようにレイヤ 1 制御回路 3 a、レイヤ 2 制御回路 3 c 及びレイヤ 3 制御回路 3 d を制御する I インターフェイス CPU 3 d と、から構成される。

【 0 0 2 7 】I インターフェイス制御部 3 は、ドライバ／レシーバ回路 2 及び D S U を介して I S D N 網との間で I S D N 通信制御シーケンスに基づいて通話路の確立処理を実行し、着呼時に受信する呼設定メッセージを CPU 8 に出力するとともに、通話路確立後に受信する受話信号 (μ l o w P C M デジタル音声信号) をスピーチコーデック部 4 に出力する。

【 0 0 2 8 】また、I インターフェイス制御部 3 は、子機からの発呼要求時に CPU 8 から入力される呼設定要求に応じて呼設定メッセージを I S D N の通信フォーマットによりドライバ／レシーバ回路 2 及び D S U を介して I S D N 網に送出して通話路の確立処理を実行し、通話路確立後にスピーチコーデック部 4 から入力される送話信号をドライバ／レシーバ回路 2 及び D S U を介して I S D N 網に送出する。

【 0 0 2 9 】スピーチコーデック部 4 は、I インターフェイス制御部 3 から入力される受話信号を所定の符号化

方式 (例えば、A D P C M) で圧縮 (符号化) して (μ l o w P C M → A D P C M) 無線制御部 5 及びメモリ 9 ～ 1 1 に出力するとともに、無線制御部 5 から入力される圧縮された送話信号を伸張 (復号化) して (A D P C M → μ l o w P C M) I インターフェイス制御部 3 に出力する。

【 0 0 3 0 】無線制御部 5 は、無線通信部 6 を制御し、スピーチコーデック部 4 から入力される圧縮された受話音声を所定の無線信号によりアンテナ 7 から子機に送信するとともに、アンテナ 7 及び無線通信部 6 により子機から受信する送話信号をスピーチコーデック部 4 に出力する。また、無線制御部 5 は、子機から受信するサブアドレス情報を CPU 8 に出力する。

【 0 0 3 1 】CPU (Central Processing Unit) 8 は、ROM (Read Only Memory) に格納される各種制御プログラムにより親機 1 内の各部を制御して親機 1 としてのシーケンスを実行するとともに、I インターフェイス制御部 3 から入力される呼設定メッセージに含まれるサブアドレス情報を解析して着呼先子機を識別すると、その着呼先子機に対して無線制御部 5 により呼発生を通知する。

【 0 0 3 2 】また、CPU 8 は、後述する子機 2 0 から無線送信される留守モード設定情報及び子機サブアドレス情報を受信すると、その受信情報を後述するメモリ 1 0 内に子機別に留守情報として登録する。したがって、CPU 8 では、メモリ 1 0 内に子機別に登録する留守情報を管理することにより複数の子機毎の留守番機能を実現する。

【 0 0 3 3 】また、CPU 8 は、着呼があると、呼設定メッセージに含まれるサブアドレス情報を検出し、メモリ 1 0 に登録した留守情報を参照して着呼先子機が留守登録中の子機サブアドレスと一致すると、I インターフェイス制御部 3 に対して通話路を確立するための要求を出力し、I インターフェイス制御部 3 により通話路が確立されると、メモリ 1 0 に予め記憶されている子機毎の留守応答メッセージを読み出して I インターフェイス制御部 3 に出力し、発呼側に留守である旨を通知し、伝言メッセージが受信されると、スピーチコーデック部 4 を通して子機別サブアドレスに対応させてメモリ 9 内に設定する記憶領域に記憶させる。

【 0 0 3 4 】また、CPU 8 は、子機 2 0 から無線送信される伝言メッセージ確認信号に応じて後述するメモリ 1 0 に記憶されている留守時の情報とこの情報に対応してメモリ 9 内に記憶されている伝言メッセージを読み出し、無線制御部 5 及び無線通信部 6 によりアンテナ 7 から当該子機に無線送信させる。

【 0 0 3 5 】さらに、CPU 8 は、留守中の外部の電話機からの着信に応じてメモリ 1 0 内の子機別着信回数をカウントアップする。

【 0 0 3 6 】また、CPU 8 は、ハンドセット 1 5 のオ

フック操作により発呼要求、キー入力部 1 2 からキー入力される相手先電話番号によっても I インターフェイス制御部 3 に対して呼設定要求を出力し、通信制御シーケンスを実行し、そのキー入力情報及び通話中の通信状態を示す情報等を表示部 1 4 に表示し、ハンドセット 1 5 のマイク 1 5 a 及びスピーカ 1 5 b により通話できるように制御する。

【0037】メモリ 9 は、RAM (Random Access Memory) 等から構成され、図 2 に示すように、アドレス 0 ~ n に対して記憶領域を形成し、留守中に受信した伝言メッセージを所定領域に格納し、その伝言メッセージを記憶した領域のアドレス情報はメモリ 1 0 に伝言メッセージ管理情報として格納される。

【0038】メモリ 1 0 は、RAM 等から構成され、図 3 に示すように子機毎の留守状態、着信回数及び応答メッセージ等を記憶する留守情報管理領域と、当該子機に対応してメモリ 9 に記憶されたそれぞれの伝言メッセージのスタートアドレス情報及びエンドアドレス情報を記憶管理するとともに、その伝言メッセージの着呼時の情報として着呼時間情報及び発呼者番号情報を記憶管理するメッセージ情報管理領域からなる。

【0039】メモリ 1 1 は、ROM 等から構成され、メモリ 1 0 内に記憶される音声メモリ指定情報メモリの内容 (例えば、着信回数等) を音声で通知する際の音声データを格納する音声 ROM を構成する。

【0040】キー入力部 1 2 は、テンキーや各種モードキー等を備え、ユーザーによりキー入力される発呼要求、相手先電話番号等を CPU 8 に出力する。時計部 1 3 は、その時間情報を CPU 8 に出力する。表示部 1 4 は、液晶表示パネル等から構成され、CPU 8 から入力されるキー入力情報及び通話中の通信状態等を表示する。

【0041】図 4 は、コードレス電話機の子機 2 0 のブロック構成図である。この図において、子機 2 0 は、アンテナ 2 1、無線通信部 2 2、無線制御部 2 3、スピーチコーデック部 2 4、A/D・D/A コンバータ 2 5、CPU 2 6、表示部 2 7、キー入力部 2 8、マイク 2 9、スピーカ 3 0 及びリング 3 1 により構成される。無線通信部 2 2 は、アンテナ 2 1 により親機 1 から無線信号で受信する受信信号 (呼発生信号、受話信号等) を無線制御部 2 3 に出力するとともに、無線制御部 2 3 から入力される送信信号 (発呼信号、送話信号等) を所定の無線周波数信号に変換してアンテナ 2 1 から送信する。

【0042】無線制御部 2 3 は、無線通信部 2 2 から入力される受信信号のうち呼発生信号を CPU 2 6 に出力し、受話信号をスピーチコーデック部 2 4 に出力するとともに、CPU 2 6 から入力される発呼要求信号及びスピーチコーデック部 2 4 から入力される送話信号を無線通信部 2 2 に出力する。

【0043】スピーチコーデック部 2 4 は、無線制御部 2 3 から入力される圧縮された受話信号 (例えば、ADPCM デジタル音声信号) を伸張 (復号化) して A/D・D/A コンバータ 2 5 に出力するとともに、A/D・D/A コンバータ 2 5 から入力される送話信号を所定の符号化方式で圧縮 (符号化) して無線制御部 2 3 に出力する。

【0044】A/D・D/A コンバータ 2 5 は、CPU 2 6 から入力される呼発生信号によりリング 3 1 を鳴動させて着呼を知らせるとともに、スピーチコーデック部 2 4 から入力されるデジタル音声信号をアナログ音声信号に変換してスピーカ 3 0 から出力し、また、マイク 2 9 から入力される送話音声信号をデジタル信号に変換してデジタル音声信号としてスピーチコーデック部 2 4 に出力する。

【0045】CPU 2 6 は、ROM 等に格納される各種制御プログラムにより子機 2 0 内の各部を制御して子機 2 0 としてのシーケンスを実行し、無線制御部 2 3 から入力される呼発生信号を A/D・D/A コンバータ 2 5 に出力して着呼を通知させ、キー入力部 2 8 におけるフックキー操作によりオフフック信号を検出すると、無線制御部 2 3 及び A/D・D/A コンバータ 2 5 を制御して送・受話信号を授受し、また、待ち受け時にキー入力部 2 8 におけるフックキー操作によりオフフック信号を検出すると、発呼要求し、相手先電話番号に応じて発呼信号を無線制御部 2 3 及び無線通信部 2 2 によりアンテナ 2 1 から無線送信させる。

【0046】また、CPU 2 6 は、キー入力部 2 8 における留守モード設定キーのキー操作に応じて留守中である旨を親機 1 に登録するための留守モード登録情報の無線信号を無線制御部 2 3 及び無線通信部 2 2 によりアンテナ 2 1 から無線送信させるとともに、キー入力部 2 8 における伝言メッセージ確認キーの操作に応じてその旨を親機 1 に通知するための伝言メッセージ確認信号の無線信号を無線制御部 2 3 及び無線通信部 2 2 によりアンテナ 2 1 から無線送信させる。

【0047】表示部 2 7 は、液晶表示パネル等から構成され、CPU 2 6 から入力されるキー入力情報及び通話中の通信状態等を表示するとともに、キー入力部 2 8 における伝言メッセージ確認キーの操作により親機 1 から無線送信される子機別の上記図 3 に示した留守情報のうち着呼時間情報、発呼者番号情報及び着信回数情報を表示する。

【0048】キー入力部 2 8 は、テンキー、各種モードキー、留守モード設定キー及び伝言メッセージ確認キー等が設けられ、ユーザーによりキー入力される発呼要求、相手先電話番号、留守モード設定信号、伝言メッセージ確認信号等を CPU 2 6 に出力する。

【0049】次に、本実施例の動作を説明する。

【0050】まず、通常の制御手順に基づく着・発信処

理について図5を参照して説明する。

【0051】相手端末側から呼設定（以後、SET UPという）がISDN網をに要求されると、ISDN網から親機1のDSU及びドライバ／レシーバ回路2を介してIインターフェース制御部3がSET UPを受信する。このときISDN網では通話路（チャンネル）を保留するとともに、相手側端末に呼設定受付（CALL PROCEEDING、以後CALL PROCという）が送出される。Iインターフェース制御部3では、ISDN網からのSET UPを受けて、このSET UPメッセージがCPU8に出力される。また、ISDN通信制御シーケンスに基づいて呼出中であることを知らせる呼出（ALERTING）をISDN網及びこのISDN網を介して相手側端末に送出する。

【0052】CPU8では、Iインターフェース制御部3から入力されるSET UPメッセージから自己アドレスに付加されるサブアドレス情報を解析して着呼先子機を識別し、その着呼先子機に対して無線制御部5及び無線通信部6によりアンテナ7から呼発生を通知する無線信号を送信させる。

【0053】子機20では、この呼発生の通知信号を無線通信部22及び無線制御部23により受信してCPU26に通知されると、CPU26は、呼発生信号をA/D・D/Aコンバータ25に出力してリング31を鳴動させてユーザーに着呼を知らせる。このリング31の鳴動に応じてユーザーのキー入力部28におけるフックキー操作によりオフフックがCPU26に指示されると、CPU26から応答信号が無線制御部23に転送され、無線通信部22によりアンテナ21から親機1に無線送信される。

【0054】親機1では、アンテナ7、無線通信部6及び無線制御部5により受信した応答信号がCPU8に伝達されると、CPU8は、呼設定要求に応答する情報をIインターフェース制御部3に出力する。Iインターフェース制御部3は、この情報に基づいて応答（CONNECT、以後CONNという）をドライバ／レシーバ回路2及びDSUを介してISDN網に対して送信する。ISDN網では、このCONNを受け、通話路の確立（チャンネル接続）をするとともに、CONNを相手側端末に送出し、応答確認（CONNECT ACKNOWLEDGE）を親機1に送出する。

【0055】通話路が確立すると、Iインターフェース制御部3は、DSUからドライバ／レシーバ回路2を介して受信する受信フレームを分解し、受話信号をスピーチコーデック部4に出力する。

【0056】スピーチコーデック部4では、入力された受話信号を所定の符号化方式で圧縮して無線制御部5に出力すると、無線制御部5及び無線通信部6によりアンテナ7から着呼先の子機20に受話信号が無線送信される。

【0057】子機20では、アンテナ21、無線通信部22及び無線制御部23により受信した受話信号がスピーチコーデック部24に伝達されると、スピーチコーデック部24は、入力される圧縮された受話信号を伸張（復号化）してA/D・D/Aコンバータ25に出力する。A/D・D/Aコンバータ25は、入力される受話信号をアナログ音声信号に変換してスピーカ30に出力し、受話音声ユーザーに聞かせることができる。

【0058】また、子機20において、マイク29から入力される送話音声は、A/D・D/Aコンバータ25によりデジタル化され送話信号としてスピーチコーデック部24に出力される。スピーチコーデック部24は、送話信号を所定の符号化方式で圧縮して無線制御部23に出力すると、無線制御部23及び無線通信部22によりアンテナ21から親機1に送話信号が無線送信される。

【0059】親機1では、アンテナ7、無線通信部6及び無線制御部5により受信した送話信号がスピーチコーデック部4に伝達されると、スピーチコーデック部4は、送話信号を伸張（復号化）してIインターフェース制御部3に出力する。Iインターフェース制御部3は、入力された送話信号をISDNの通信フォーマットにより送話フレームを生成してドライバ／レシーバ回路2及びDSUを介してISDN網に送出する。

【0060】このように子機20は、親機1を介して相手端末との間で双方向通信を行い、通話が実行される。

【0061】そして、ユーザーのキー入力部28におけるフックキー操作によりオンフックがCPU26に指示されると、CPU26から回線切断信号が無線制御部23に転送され、無線通信部22によりアンテナ21から親機1に無線送信される。

【0062】親機1では、アンテナ7、無線通信部6及び無線制御部5により受信した回線切断信号がCPU8に転送されると、CPU8はこの回線切断信号に対する情報をIインターフェース制御部3に出力する。Iインターフェース制御部3は、ドライバ／レシーバ回路2及びDSUを介してISDN網に対して切断（DISCONNECT、以後DISCという）を出力する。ISDN網では、このDISCを受け、通話路（チャンネル）の切断をするとともにDISCを相手側端末に、開放（RELEASE、以後RELという）を親機1に送出する。また、相手側端末もこのDISCを受けて、ISDN網に対してRELを送出する。

【0063】これにより、ISDN網は、通信路（チャンネル）を開放して、それぞれ親機1はISDN網に、ISDN網は相手側端末に開放終了（RELEASE COMPLETE）を送出して終了する。

【0064】なお、この実施例では、着呼側でオンフックを指示した場合であり、留守情報が登録されている場合は、発呼側でオンフックを指示するのでDISCは相

手側端末から送出され、以下同様に通話路の開放が行われる。

【0065】次に、留守モード時制御手順に基づく着・発信処理について図5を参照して説明する。

【0066】なお、通常の制御手順と同じところは、その説明を省略する。

【0067】子機20のキー入力部28におけるユーザーのキー操作により留守モード設定キーが操作されてCPU26に入力されると、CPU26は、留守中である旨を親機1に登録するための留守モード登録情報及び自己の子機サブアドレスを無線制御部23及び無線通信部22により無線信号に変換してアンテナ21から無線送信させる。

【0068】親機1では、この無線信号を受信すると、その受信情報がCPU8によりメモリ10内に子機別の留守状態情報として登録され、この登録された留守状態情報により当該子機が留守中であることが管理される。

【0069】このメモリ10に子機の留守状態情報が登録されている場合に、相手側端末からSET UPがISDN網に要求されると、ISDN網から親機1のDSU及びドライバ/レシーバ回路2を介してIインターフェース制御部3がSET UPを受信する。このときISDN網では通話路(チャンネル)を保留するとともに、相手側端末にCALL PROCが送出される。

【0070】Iインターフェース制御部3では、ISDN網からのSET UPを受けて、このSET UPメッセージがCPU8に出力される。また、ISDN通信制御シーケンスに基づいて呼出中であることを知らせる呼出(ALERTing)をISDN網及びこのISDN網を介して相手側端末に送出する。

【0071】ここで、留守設定時にCPU8により実行される処理を図6に示すフローチャートを参照して説明する。

【0072】そして、相手側端末のフックキー操作によりオンフックが指示されると、ISDN網に対して切断(DISConnect、以後DISCという)を出力する。ISDN網では、このDISCを受け、通話路(チャンネル)の切断をするとともにDISCを親機1に、開放(RELease、以後RELという)を相手側端末に送出する。

【0073】これにより、ISDN網は、通話路(チャンネル)を開放して、それぞれ相手側端末はISDN網に、ISDN網は親機1に解放完了(RELease COMPl et e)を送出して終了する。

【0074】そして、Iインターフェース制御部3では、CPU8から入力されるオフフック信号に応じてドライバ/レシーバ回路2及びDSUを介してISDN網に対してCONNを送信し、ISDN網は、通話路を確立(チャンネル接続)する。通話路が確立すると、CPU8はメモリ10に予め記憶されている子機毎の留守応

答メッセージとしての圧縮されているデジタル音声信号を読み出してスピーチコーデック部4に出力する。スピーチコーデック部4では、メモリ10から入力されるデジタル音声信号を伸張し、 μ L owデジタルPCM信号に変換してIインターフェース制御部3に出力する。

【0075】また、Iインターフェース制御部3は、スピーチコーデック部4から入力されるデジタルPCM信号をドライバ/レシーバ回路2及びDSUを介してISDN網に対して送信する。この送信により発呼側に着呼先の子機20が留守中である旨のメッセージが通知され、その留守中の子機に対する伝言通知が可能である旨が通知される。このメッセージ通知に応じて発呼側から送信される伝言メッセージをDSU及びドライバ/レシーバ回路2を介してIインターフェース制御部3が受信すると、Iインターフェース制御部3は、その伝言メッセージをスピーチコーデック部4に出力する。

【0076】図6において、CPU8は、スピーチコーデック部4から入力される伝言メッセージをメモリ9内の空きアドレスに順次記憶し、その記憶領域のスタートアドレスとエンドアドレスをメモリ10内の当該子機のメッセージ管理情報を記憶した上記図3に示した音声メモリ指定情報メモリ領域に記憶するとともに、当該メモリ領域に着呼時の時間情報と発呼側から送信された発呼者番号情報を記憶して本処理を終了する(ステップS4)。

【0077】図6において、CPU8では、上記Iインターフェース制御部3から入力された呼設定(SET UP)メッセージに含まれる自己アドレスに付加されるサブアドレス情報を検出して着呼先子機を識別し(ステップS1)、識別したサブアドレスとメモリ10に登録されている留守情報の子機サブアドレスが一致するか否かを判別し、一致すると、留守情報であるメモリ10内のサブアドレスに対応する子機別の着信回数をカウントアップするとともに、着呼時間及び発呼者番号を記憶する(ステップS2)。次に、この記憶した留守情報である着信回数、着呼時間及び発呼者番号を親機1の表示部14に表示するとともに、その留守情報を無線制御部5、無線通信部6及びアンテナ7を介して識別した子機20に送信する。子機20では、この留守情報がアンテナ21、無線通信部22及び無線制御部23を介してCPU26に入力され、CPU26は、この入力された留守情報を表示部27に表示させ、着信回数、着呼時間及び発呼者番号の表示を更新する。これにより、ユーザーは、帰宅時に子機に対する留守情報を認識することができる。

【0078】次に、留守中記憶した伝言メッセージの再生動作について説明する。

【0079】親機1に留守登録された子機20において、ユーザーによるキー入力部28における伝言メッセ

ージ確認キーの操作が行われてCPU 26に入力されると、その旨を親機1に通知するための伝言メッセージ確認信号及び自己の子機サブアドレスを含む無線信号が無線制御部23及び無線通信部22によりアンテナ21から親機1に無線送信される。

【0080】親機1では、この無線信号を無線制御部5が受信すると、その伝言メッセージ確認信号及び子機サブアドレスがCPU8に伝達される。CPU8では、無線制御部5から入力される子機サブアドレスがメモリ10に登録されている子機の留守情報の子機サブアドレスと一致するかどうかを判別し、一致すると、メモリ10内のメッセージ情報管理領域の当該子機用に記憶されているメモリ9内のスタートアドレスとエンドアドレスを参照し、メモリ9内に記憶されている留守中の受話音声データを順次読み出し、通信制御部5及び無線通信部6によりアンテナ7から子機20に対して順次無線送信させる。

【0081】子機20では、親機1から無線送信される受話音声データ及び着呼時の時間情報、発呼者番号情報及び着信回数情報を無線制御回路23に受信すると、スピーチコーデック部24に伝達され、スピーチコーデック部24は、入力される圧縮された伝言メッセージを伸張（復号化）してA/D・D/Aコンバータ25に出力する。A/D・D/Aコンバータ25では、入力される伝言メッセージをアナログ音声信号に変換してスピーカ30に出力し、伝言メッセージをユーザーに聞かせることができる。

【0082】したがって、本実施例のコードレス電話機では、親機1が複数の子機の留守状態を管理し、留守中に外線から受信する着呼情報及び伝言メッセージを、留守登録された子機別に記憶するようにしているので、子機毎の留守番機能を有することができ、留守番機能を有するコードレス電話機における複数の子機の各々に留守番機能を持たせたものと同等のことができる。

【0083】また、子機別に留守中の着呼情報を明確に表示あるいは音声で通知することにより、家庭内にあっても個人宛の用件を明確にすることができる。

【0084】なお、上記実施例では、留守情報（着信回数、着呼時間及び発呼者番号）の子機20への通知を伝言メッセージの着信時にしたが、これに限ることなく子機20により伝言メッセージ確認キーが操作された時にメモリ10からこの留守情報を読み出して子機20に通知するようにしてもよい。

【0085】また、この通知方法としては、表示あるいは音声で通知する方法がある。表示により通知する方法は、親機1で子機20からの伝言メッセージ確認信号及び子機サブアドレスを受けると、この親機1のCPU8は、メモリ10に記憶されている当該子機20の留守情報を読み出して子機20に無線通信し、子機20では、この留守情報を表示部27に表示する。

【0086】他方、音声により通知する方法は、親機1で子機20からの伝言メッセージ確認信号及び子機サブアドレスを受けると、この親機1のCPU8は、メモリ10に記憶されている当該子機20の留守情報を読み出し、その留守情報に対応する音声データをメモリ11内の音声ROMから読み出し、順次無線通信制御部5、無線通信部6及びアンテナ7を介して子機20に対して無線送信する。そして、子機20では、その受信した留守情報に対応する音声データをアンテナ21、無線通信部22、無線制御部23、スピーチコーデック部24及びA/D・D/Aコンバータ25を介してアナログ音声信号に変換してスピーカ30に出力することにより、留守中の留守情報（着信回数、着呼時間及び発呼者番号）を音声によりユーザーに聞かせることができる。

【0087】さらに、上記実施例では、本発明をISDN網に接続したがアナログ回線に接続することも可能である。この場合、アナログ回線では、ISDN網の様に子機のサブアドレスが得られないので、予め子機毎に子機番号を設定し、発呼者によりこの子機番号を入力してもらうことにより親機に子機を識別させて留守中子機を指定して伝言を記憶させることが可能である。

【0088】また、留守番電話機は、コードレスに限ることなく、有線で接続された親子電話機でも可能である。

【0089】図7～図11は、請求項3記載の発明の留守番電話機をPSTN（公衆電話回線網）に対応するデジタルコードレス電話機（HPP）に適用した一実施例を示す図である。

【0090】まず、構成を説明する。

【0091】図7は、コードレス電話機の親機40のブロック構成図である。この図において、親機40は、音声切換部41、PCMコーデック部42、音声符号化／復号化部43、通信制御部44、無線部45、アンテナ46、CPU47、キー入力部48、子機情報メモリ49、ID-ROM50、表示部51、リングスピーカ52及び録音再生部53により構成される。

【0092】音声切換部41は、外部の回線Lと接続し、この回線Lを介して外部の電話機から通話路確立後に受信する受話信号をPCMコーデック部42あるいは録音再生部53に切り換えて出力するとともに、PCMコーデック部42から入力される送話信号を回線Lを介して外部の電話機に出力する。

【0093】PCMコーデック部42は、音声切換部41から入力される受話信号を、例えばPCMデジタル音声信号に変換して音声符号化部43に出力するとともに、音声符号化／復号化部43から入力されるPCMデジタル音声信号をアナログ音声信号に変換して音声切換部41に出力する。

【0094】音声符号化／復号化部43は、PCMコーデック部42から入力されるPCMデジタル音声信号

を所定の符号化方式（例えば、ADPCM）で符号化して（PCM→ADPCM）通信制御部 4 4 に出力するとともに、通信制御部 4 4 から入力される符号化された送話信号を復号化して（ADPCM→PCM）、PCMコーデック部 4 2 に出力する。

【0095】通信制御部 4 4 は、図示しないROM内のプログラムに基づいて無線部 4 5 を制御し、所定通信手順で子機との通信を制御する。つまり、音声符号化／復号化部 4 3 から入力される符号化された受話音声に制御信号を付加してスロットを作成して所定タイミングでフレームに挿入して無線制御部 4 5 に出力する。また、無線制御部 4 5 から送られてきたフレームデータ列から所定タイミングでスロットを抽出し、このスロットを制御信号と送話音声に分けて送話音声を音声符号化／復号化部 4 3 に出力する。さらに、制御信号内の子機のサブアドレス情報をCPU 4 7 に出力する。

【0096】無線部 4 5 は、送受信信号の周波数変換をする高周波部と変復調を行うモデム部から構成される。モデム部は、通信制御部 4 4 からの制御信号に基づいて通信制御部 4 4 から送られてきたフレームデータ列として通信制御部 4 4 に出力する。高周波部では、モデム部から送られてきた送信信号を 1.9GHz 帯の周波数に周波数変換してアンテナ 4 6 を介して送信し、また、アンテナ 4 6 を介して受信した電波を 1.9GHz 帯から 2 段のミキサにより 10MHz 付近に周波数変換をしてモデム部に出力する。

【0097】CPU 4 7 は、ROMに格納される各種制御プログラムにより親機 4 0 内の各部を制御して親機 4 0 としてのシーケンスを実行し、外部の電話機からの着呼に際してリングスピーカ 5 2 を鳴動させて着信を知らせ、また、着呼に際して通信制御部 4 4 から入力される呼設定メッセージに含まれるサブアドレス情報を解析して指定子機への着呼を識別すると、その指定子機に対して通信制御部 4 4 により着呼を通知する。

【0098】また、CPU 4 7 は、着呼の通知に対して後述する子機 6 0 から応答が無い場合に、当該子機 6 0 が留守であることを認識し、予め子機情報メモリ 4 9 に子機別に登録されている留守応答メッセージを外部の電話機に対して送信し、子機別の留守応答メッセージが登録されていない場合は、共通の応答メッセージを送信して、指定子機が留守中であることを通知する。

【0099】そして、送信した応答メッセージに対して外部の電話機から受信する受信メッセージを録音再生部 5 3 に録音した後、回線 L との接続を切断して外部の電話機との間の通話を終了する。そして、この留守中に録音した受信メッセージの転送指定が設定されている場合は、当該受信メッセージを屋外の子機 6 0 に送信するため、後述する子機 6 0 への外線発呼処理を実行する。

【0100】したがって、CPU 4 7 では、子機情報メモリ 4 9 内に子機別に登録する留守応答メッセージ及び

子機別に記憶する受信メッセージを管理することにより複数の子機毎の留守番機能を実現する。特に、後述する移動電話機としての機能を備えた子機 6 0 に対して確実に留守中の受信メッセージを通知することにより、屋外で使用中の子機 6 0 の留守中に着信した受信メッセージを親機 4 0 内で管理して、屋外で利用されている子機 6 0 に対しても留守番機能を提供する。

【0101】キー入力部 4 8 は、テンキーや各種モードキー等を備え、ユーザーによりキー入力される発呼要求、相手先電話番号等をCPU 4 7 に出力する。

【0102】子機情報メモリ 4 9 は、子機番号情報、子機外線番号情報を記憶するとともに、子機別の留守応答メッセージ、留守中の録音メッセージの転送を指示する転送指定情報等を記憶する。ID-ROM 5 0 は、自己及び子機の認識番号を登録するメモリエリアを形成する。

【0103】表示部 5 1 は、液晶表示パネル等から構成され、CPU 4 7 から入力されるキー入力情報及び通話中の通信状態等を表示する。録音再生部 5 3 は、音声切換部 4 1 から入力される受話音声を録音して再生する。

【0104】図 8 は、コードレス電話機の子機 6 0 のブロック構成図である。

【0105】本実施例の子機 6 0 は、コードレス電話機が設置される宅内で使用される場合は、通常のコードレス電話機の子機として機能し、屋外に持ち出して利用される場合は、移動電話機として機能する。

【0106】子機 6 0 は、アンテナ 6 1、無線部 6 2、通信制御部 6 3、音声符号化／復号化部 6 4、PCMコーデック部 6 5、アンプ部 6 6、受話スピーカ 6 7、送話マイク 6 8、CPU 6 9、キー入力部 7 0、ID-ROM 7 1、表示部 7 2 及びリングスピーカ 7 3 により構成される。

【0107】無線部 6 2 は、アンテナ 6 1 により親機 4 0 から無線信号で受信する受信信号（呼発生信号、受話信号等）を周波数変換及び復調をして通信制御部 6 3 に出力するとともに、通信制御部 6 3 から入力される送信信号（発呼信号、送話信号等）を変調及び所定の無線周波数信号に変換してアンテナ 6 1 から送信する。

【0108】通信制御部 6 3 は、無線部 6 2 から入力される受信信号のうち呼発生信号をCPU 6 9 に出力し、受話信号を音声符号化／復号化部 6 4 に出力するとともに、CPU 6 9 から入力される発呼要求信号及び音声符号化／復号化部 6 4 から入力される送話信号を無線部 6 2 に出力する。

【0109】音声符号化／復号化部 6 4 は、通信制御部 6 3 から入力される符号化された受話信号（例えば、ADPCMディジタル音声信号）を復号化（ADPCM→PCM）してPCMコーデック部 6 5 に出力するとともに、PCMコーデック部 6 5 から入力される送話信号（PCM信号）を所定の符号化方式（例えば、ADPC

M方式)で符号化して通信制御部63に出力する。

【0110】PCMコーデック部65は、音声符号化／復号化部64から入力されるPCMデジタル音声信号をアナログ音声信号に変換してアンプ部66に出力するとともに、アンプ部66から入力される送話信号をPCMデジタル音声信号に変換して音声符号化／復号化部64に出力する。

【0111】アンプ部66は、PCMコーデック部65から入力されるアナログ音声信号を所定の増幅率で増幅して受話スピーカ67から再生し、送話マイク68から入力される送話信号を所定の増幅率で増幅してPCMコーデック部65に出力する。

【0112】CPU69は、ROM等に格納される各種制御プログラムにより子機60内の各部を制御して子機としてのシーケンスを実行し、例えば、子機60が宅内でコードレス電話機の子機として利用される場合は、親機40の無線送信により通信制御部63から入力される着呼信号によりリングスピーカ73を鳴動させて着呼を知らせ、キー入力部70におけるフックキー操作によりオフフック信号を検出すると、通信制御部63を制御して、親機40を介して外部の電話機との間で送・受話信号を授受して通話を行わせる。

【0113】また、CPU69は、子機60が屋外で移動電話機として利用される場合は、公衆無線基地局の通信圏内において、公衆無線基地局からの無線送信により着呼を受信して通信制御部63から着呼信号が入力されると、リングスピーカ73を鳴動させて着呼を知らせ、キー入力部70におけるフックキー操作によりオフフック信号を検出すると、通信制御部63を制御して、公衆無線基地局を介して相手先電話機との間で送・受話信号を授受して通話を行わせる。

【0114】さらに、CPU69は、親機40からの外線発呼により“受信メッセージ有り”を受信した場合は、親機40より送信される受信メッセージの受信処理を実行する。

【0115】キー入力部70は、テンキー及び各種モードキー等が設けられ、ユーザーによりキー入力される発呼要求、相手先電話番号等をCPU69に出力する。ID-ROM71は、自己及び親機の認識番号を登録するメモリエリアを形成する。表示部72は、液晶表示パネル等から構成され、CPU69から入力されるキー入力情報及び通話中の通信状態等を表示する。

【0116】次に、本実施例の動作を説明する。

【0117】まず、親機40における外線からの着信処理について図9、図10に示すフローチャートに基づいて説明する。

【0118】親機40は、回線Lを介して外部の電話機からの着呼を受信すると(ステップT1)、その回線Lと接続し(ステップT2)、選択メッセージ(例えば、“呼び出しますのでお待ちください”)等を発呼側に送

信する(ステップT3)。発呼側では、この親機40から送信される応答メッセージが流れている間に子機を指定するための1桁の番号をプッシュボタンで操作する。親機40では、そのDTMF信号で送信される子機番号を判別すると(ステップT4)、指定子機を呼び出す処理を実行する(ステップT5)。また、発呼側から指定子機の入力がない場合は、全子機を呼び出す処理を実行する(ステップT6)。

【0119】なお、ISDNに接続されている親機であれば着呼信号の中にサブアドレスとして子機の識別番号が送信されてくるのでステップT3、T4の処理は不要となる。

【0120】指定子機の呼び出し処理に続いて、呼び出した子機からの応答の有無を判別し(ステップT7)、すなわち、指定子機が宅内にあってユーザーのオフフック操作が行われた場合は、通常の外線通話処理を実行して、発呼側電話機と当該指定子機との間の通話を可能とする(ステップT8)。また、指定子機から応答がない場合は、子機情報メモリ49に当該指定子機用の留守応答メッセージが登録されているか否かを判別する(ステップT9)。留守応答メッセージが登録されている場合は、その留守応答メッセージを送信して、当該指定子機が留守であることを発呼者に通知する(ステップT10)。また、指定子機用の留守応答メッセージが登録されていない場合は、共通の留守応答メッセージを送信する(ステップT11)。続いて、留守応答メッセージに応じて発呼者から送信されるメッセージを受信して録音再生部53に録音した後(ステップT12)、当該発呼側電話機と接続する回線を切断する処理を実行する(ステップT13)。

【0121】次いで、録音した受信メッセージの転送指定の有無を判別し(ステップT14)、すなわち、子機情報メモリ49に記憶される留守中の録音メッセージの転送を指示する転送指定情報の有無により判別する。転送指定が有る場合は、当該子機の公衆番号を子機情報メモリ49から読み出して外線発呼処理を実行する(ステップT15)。当該指定子機との間の回線を接続すると(ステップS16)、“メッセージ有り”のメッセージを送信して、子機60の表示部72に表示させる(ステップS17)。次いで、子機60のユーザーに対して録音メッセージの再生を促して、子機60から応答があると、録音再生部53により録音メッセージを再生して転送処理を実行し(ステップS18)、録音メッセージの再生転送処理が終了すると、子機60と接続する回線の切断処理を実行して本処理を終了する。

【0122】次に、子機60により実行される受信処理について図11に示すフローチャートに基づいて説明する。

【0123】子機60は、まず、上記親機40による当該子機への外線発呼処理によって着信を検出すると、そ

の着信に際して当該親機 4 0 から送信される“受信メッセージ有り”受信の有無を判別する(ステップ T 2 1)。そのメッセージを受信しない場合は、通常の着信待ち受け処理を実行し(ステップ T 2 2)、そのメッセージを受信した場合は、表示部 7 2 に“メッセージ有り”を表示する(ステップ T 2 3)。

【0 1 2 4】次いで、再生要求メッセージの受信の有無を判別し(ステップ T 2 4)、再生要求メッセージが有る場合は、そのメッセージが指定子機メッセージか否かを判別する(ステップ T 2 5)。指定子機メッセージの場合は、その指定子機メッセージを再生させる(ステップ T 2 6)。さらに、指定子機メッセージでない場合、あるいは指定子機メッセージの再生終了後、再生要求メッセージが録音メッセージであるか否かを判別し(ステップ T 2 7)、録音メッセージの場合は、その録音メッセージを再生させ(ステップ T 2 8)、再生終了後、親機 4 0 と接続する回線を切断して本処理を終了する(ステップ T 2 9)。

【0 1 2 5】以上のように、親機 4 0 では、子機 6 0 が屋外で携帯電話機として利用されている場合は、当該指定子機 6 0 に対して着信したメッセージを録音し、当該子機 6 0 への外線発呼により“メッセージ有り”を送信し、録音メッセージの再生を促して聞かせるようにしているので、携帯電話機として利用されている子機 6 0 に対しても、親機 4 0 で受信録音した指定子機メッセージを確実に転送して聞かせることができる。

【0 1 2 6】したがって、宅内子機をデジタルコードレス電話機等とした場合に、個人が子機を屋外で携帯電話機として利用したとしても、宅内コードレス電話機の留守番機能を屋外の子機に提供することができる。

【0 1 2 7】また、親機 4 0 において、転送指定がなされているときは、録音メッセージを帰宅したときに聞くことになる。この場合も上記図 1 1 で説明した処理をすることにより、録音メッセージを確認することができる。つまり、親機 4 0 から送信されてくる L C C H スーパーフレームを確立できたときに、この L C C H スーパーフレームにより録音メッセージがあることを子機 6 0 に通知する(図 1 1 のステップ T 2 1 に対応する)。これを受けた後、親機 4 0 とリンクを確立して、以下同様の処理をする。こりにより、録音メッセージの転送していがなされていなくても、録音メッセージを帰宅後に確認することができる。

【0 1 2 8】

【発明の効果】請求項 1 及び 2 記載の発明によれば、親機が複数の子機の留守状態を管理し、留守中に外線から受信する着呼情報及び受話音声、留守登録された子機別に記憶することができ、子機毎に留守番機能を持たせることができ、留守番機能を有する親子電話機における複数の子機の各々に親機と同等の留守番機能を持たせることができる。また、子機別に留守中の着呼情報を明確

に表示あるいは音声で通知することにより、家庭内であっても個人宛の用件を明確にすることができる。請求項 3 記載の発明によれば、宅内子機をデジタルコードレス電話機等とした場合に、個人が子機を屋外で携帯電話機として利用したとしても、宅内コードレス電話機の留守番機能を屋外の子機に提供することができる。

【図面の簡単な説明】

【図 1】請求項 1 及び 2 記載の発明の留守番電話機を適用したコードレス電話機の親機のブロック構成図。

【図 2】図 1 のメモリ 9 内に設定される音声データ記憶領域の構成を示す図。

【図 3】図 1 のメモリ 1 0 内に記憶される音声メモリ指定情報メモリの構成を示す図。

【図 4】本発明の留守番電話機を適用したコードレス電話機の子機のブロック構成図。

【図 5】通常の I S D N 網に対する制御手順を示す図。

【図 6】図 1 の C P U により留守中の子機に対して実行される受信処理のフローチャート。

【図 7】請求項 3 記載の発明の留守番電話機を適用したコードレス電話機の親機のブロック構成図。

【図 8】請求項 3 記載の発明の留守番電話機を適用したコードレス電話機の子機のブロック構成図。

【図 9】図 7 の親機により実行される外線からの着信処理のフローチャート。

【図 1 0】図 9 の外線からの着信処理に続くフローチャート。

【図 1 1】図 8 の子機により実行される着信処理のフローチャート。

【符号の説明】

- | | |
|---------|---------------------|
| 1、4 0 | 親機 |
| 2 | ドライバ・レシーバ回路 |
| 3 | I インターフェイス制御部 |
| 4 | スピーチコーデック部 |
| 5 | 無線制御部 |
| 6 | 無線通信部 |
| 7、4 6 | アンテナ |
| 8、4 7 | C P U |
| 9 ~ 1 1 | メモリ |
| 1 2、4 8 | キー入力部 |
| 1 3 | 時計部 |
| 1 4、5 1 | 表示部 |
| 1 5 | ハンドセット |
| 2 0、6 0 | 子機 |
| 2 1、6 1 | アンテナ |
| 2 2 | 無線通信部 |
| 2 3 | 無線制御部 |
| 2 4 | スピーチコーデック部 |
| 2 5 | A / D ・ D / A コンバータ |
| 2 6、6 9 | C P U |
| 2 7、7 3 | 表示部 |

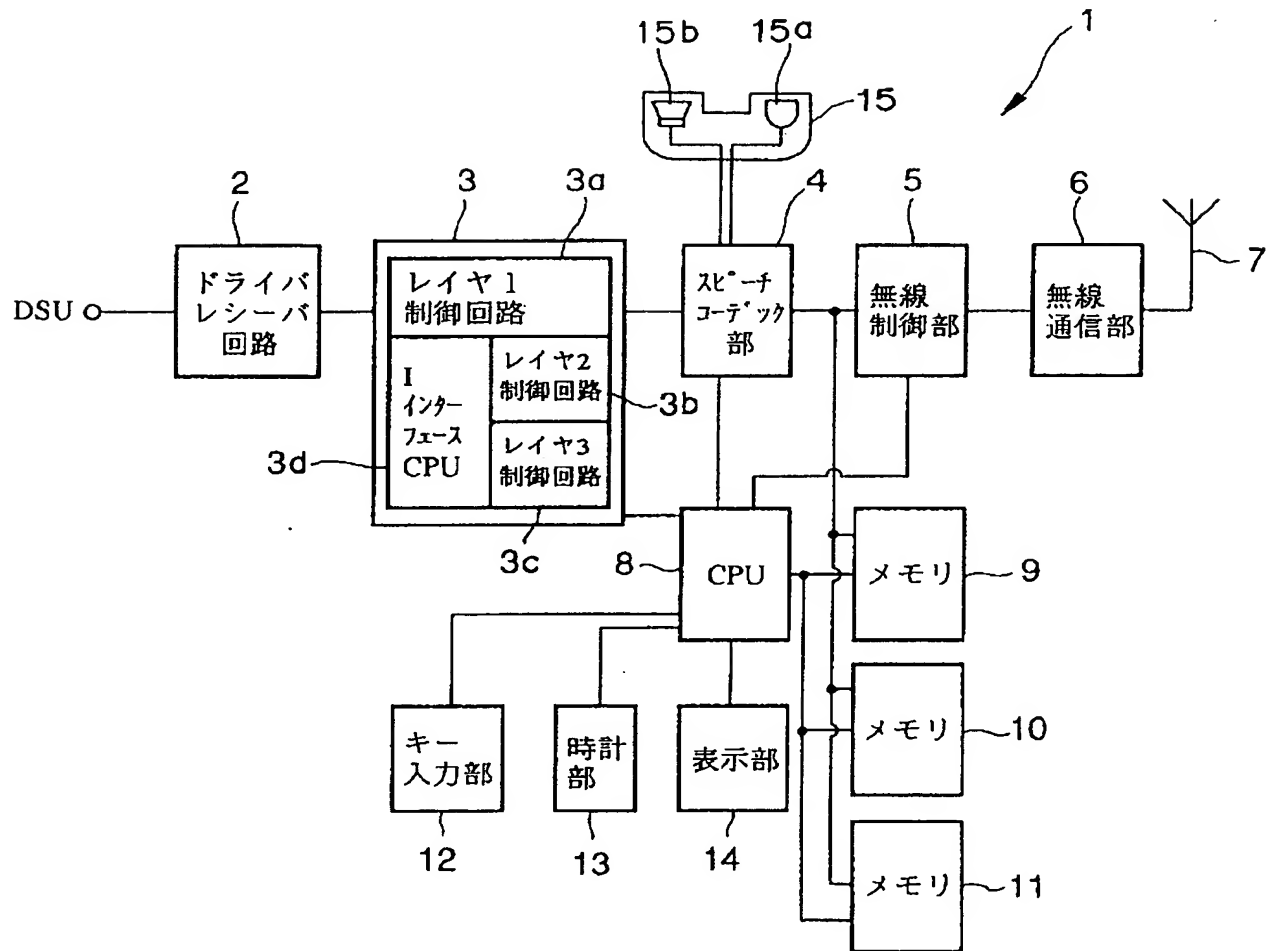
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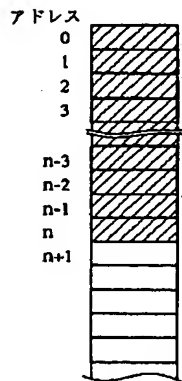
28、70 キー入力部
 29 マイク
 30 スピーカー
 31 リンガ
 41 音声切換部
 42、65 PCMコーデック部
 43、64 音声符号化／復号化部
 44、63 通信制御部

45、62 無線部
 49 子機情報メモリ
 50、71 ID-ROM
 52、73 リンガスピーカー
 53 録音再生部
 67 受話スピーカ
 68 送話マイク

【図1】



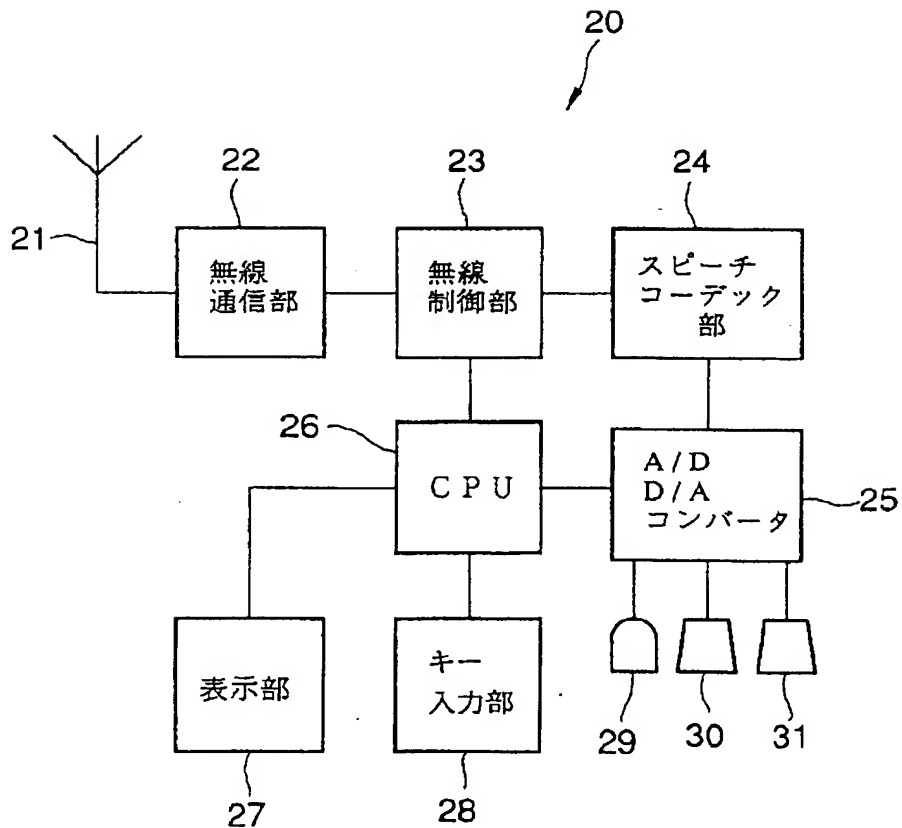
【図 2】



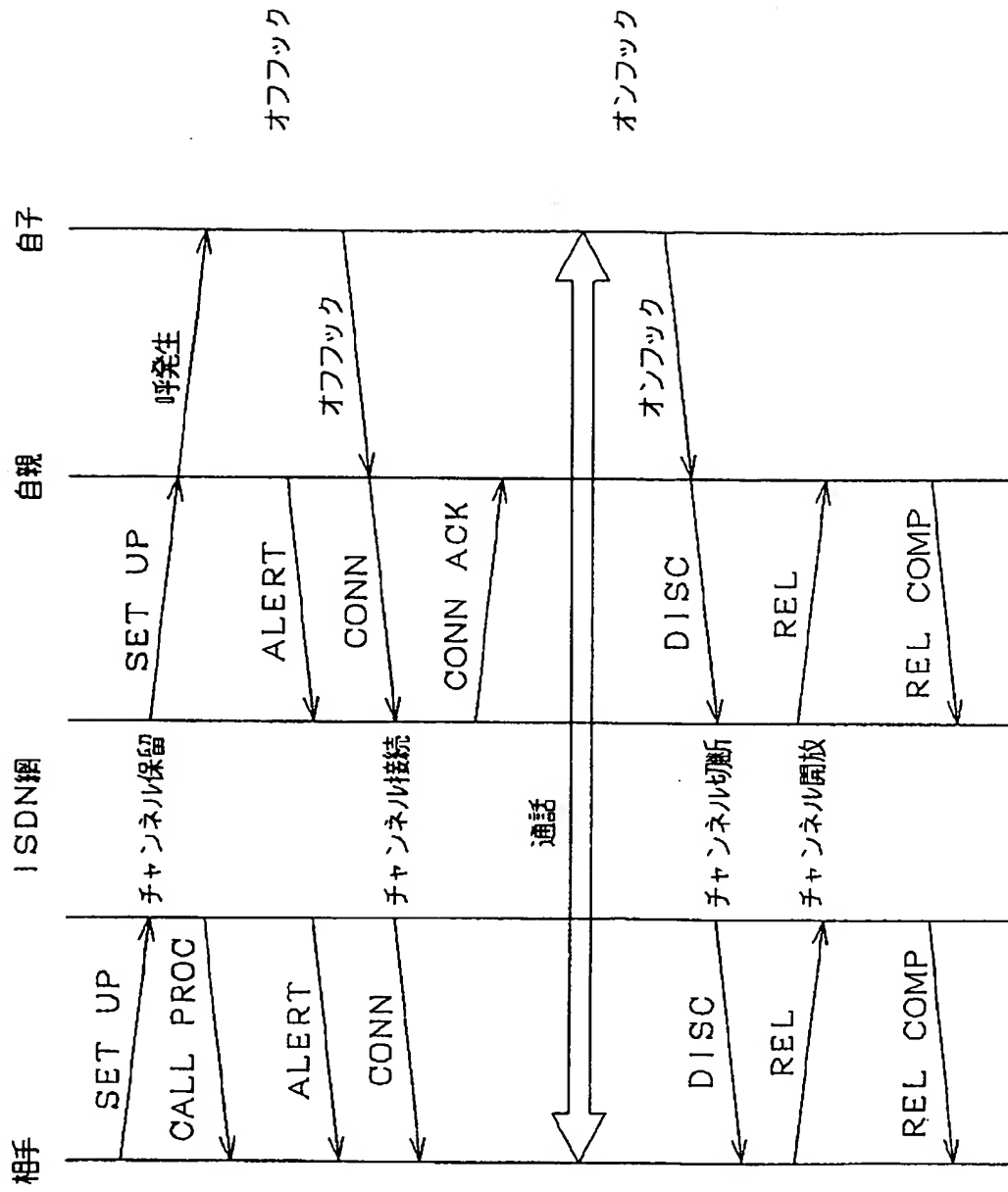
【図 3】

サブアドレス	子機 1	子機 2	---
留守情報 管理領域	<ul style="list-style-type: none"> 留守状態 着信回数 応答メッセージ 		---
メッセージ情報 管理領域	<ul style="list-style-type: none"> スタートアドレス エンドアドレス 着呼時間 発呼者番号 		---
	⋮	⋮	⋮

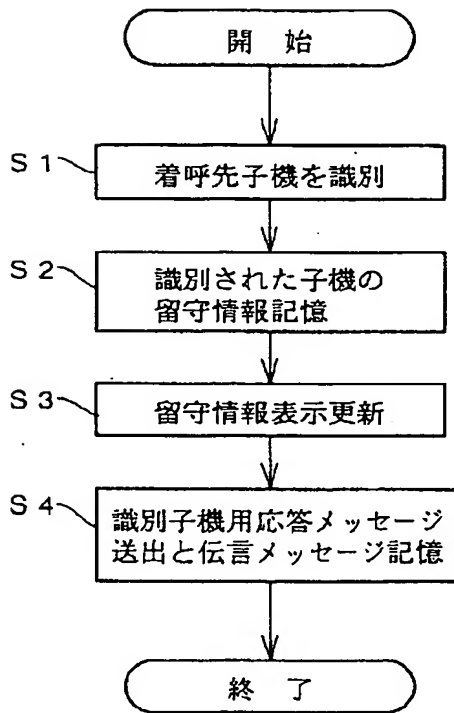
【図 4】



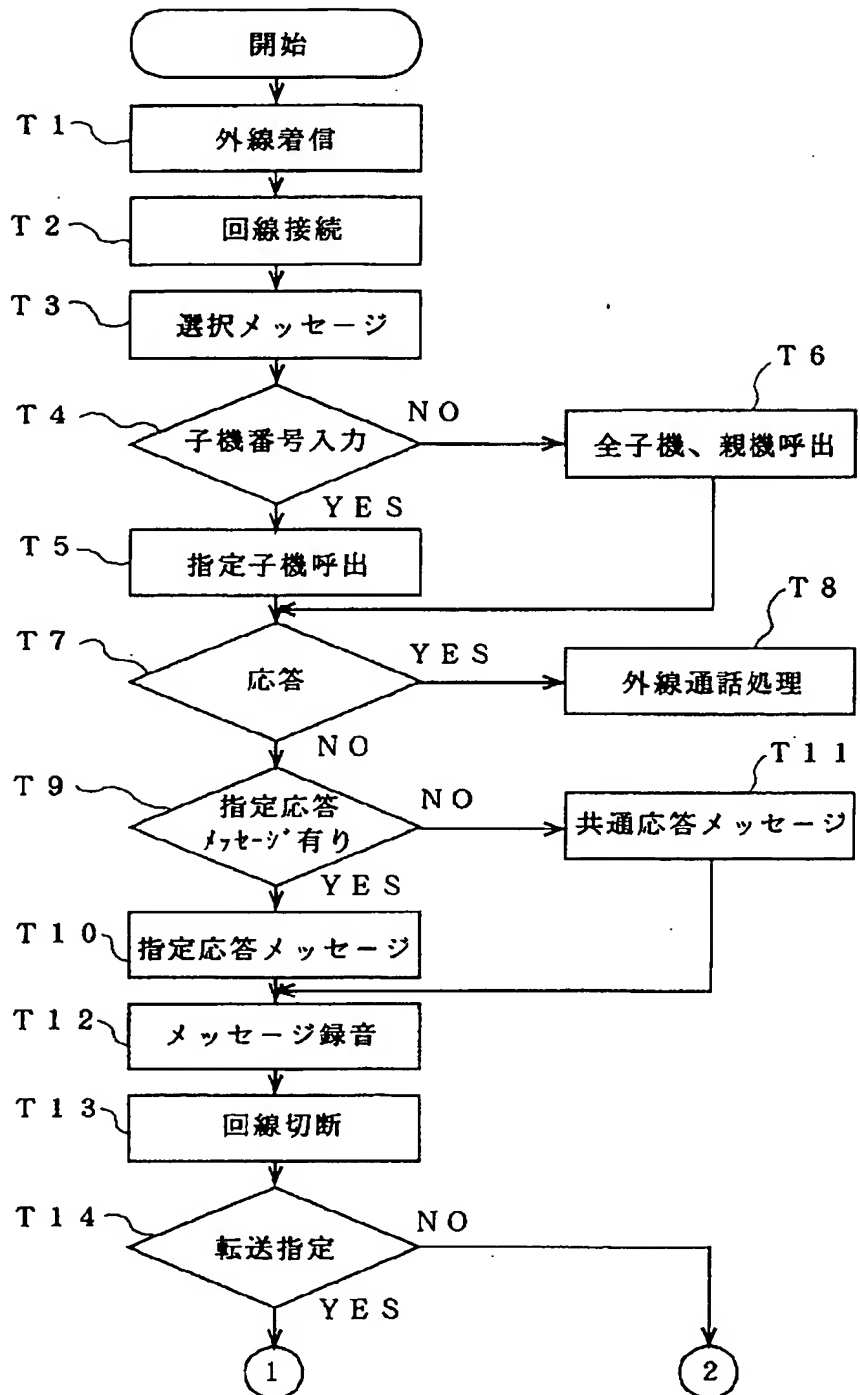
【図 5】



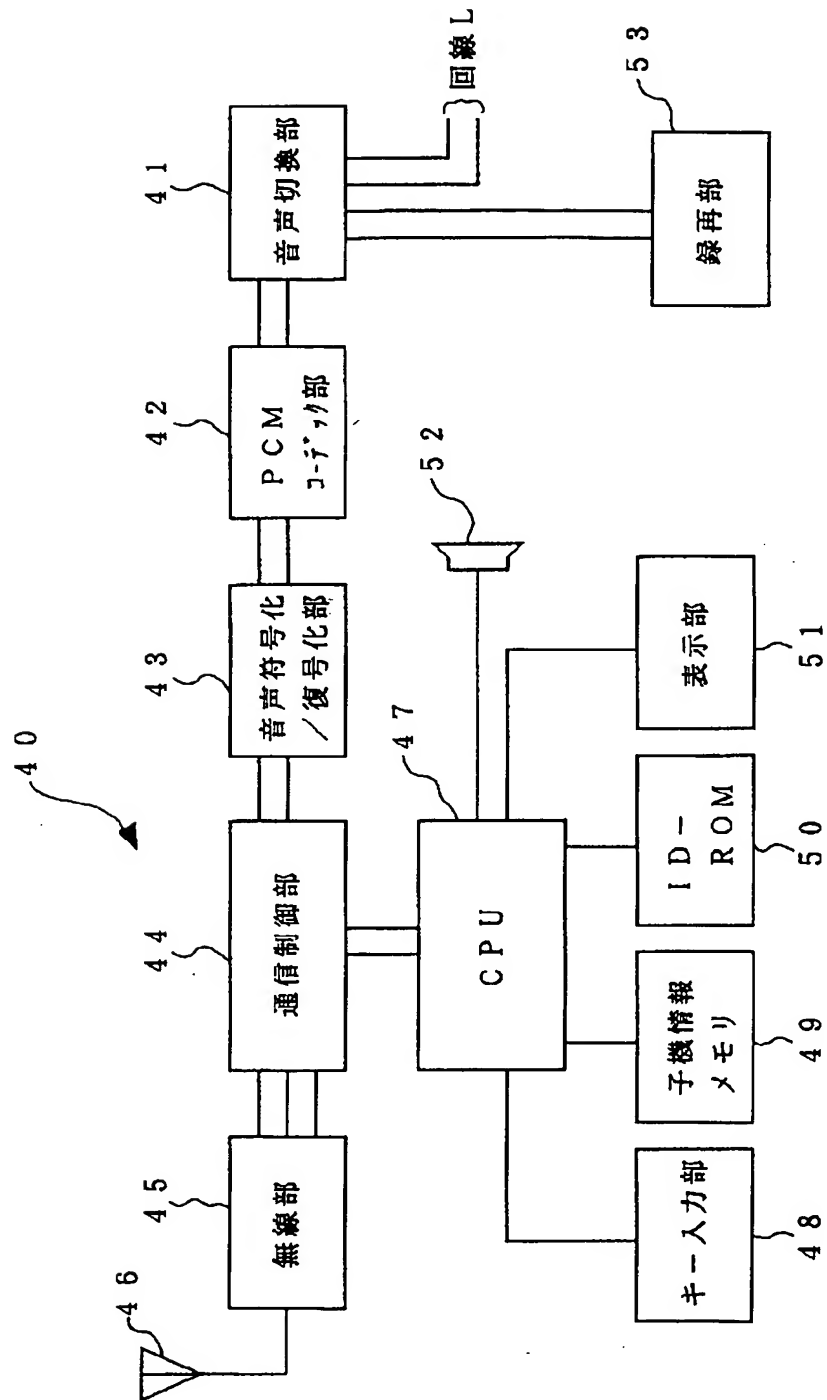
【図 6】



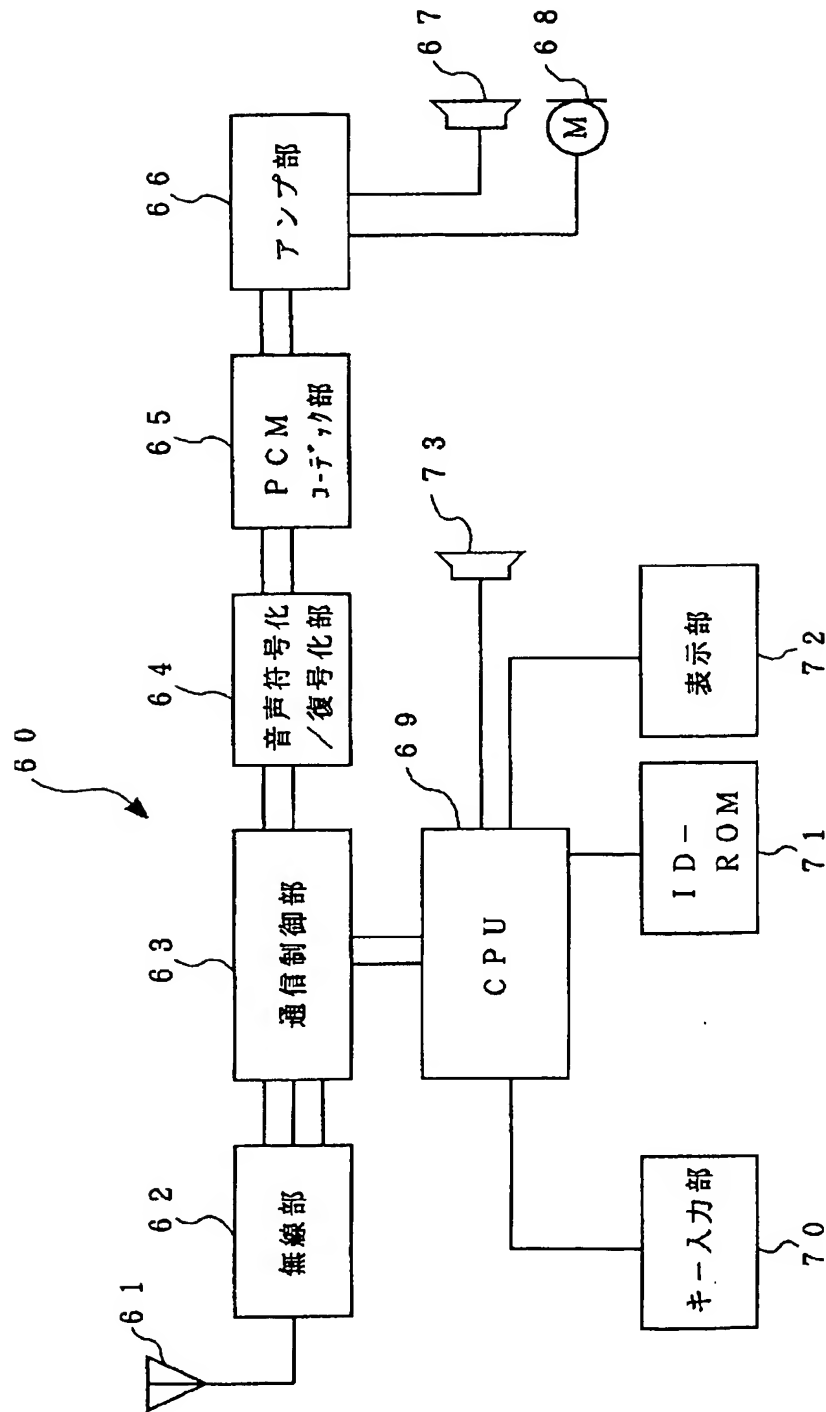
【図 9】



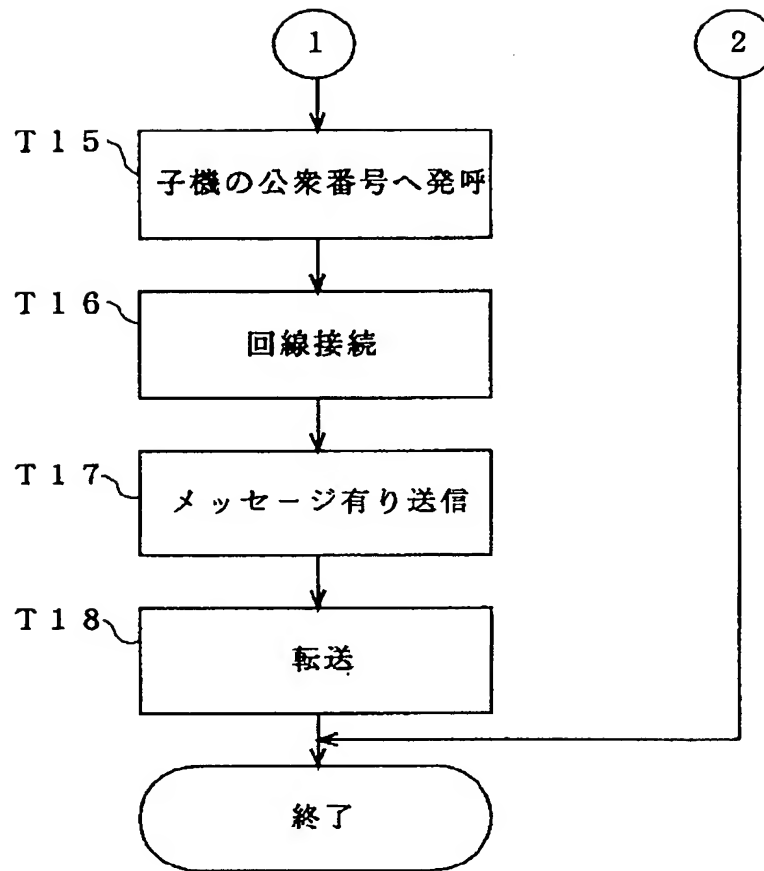
【図 7】



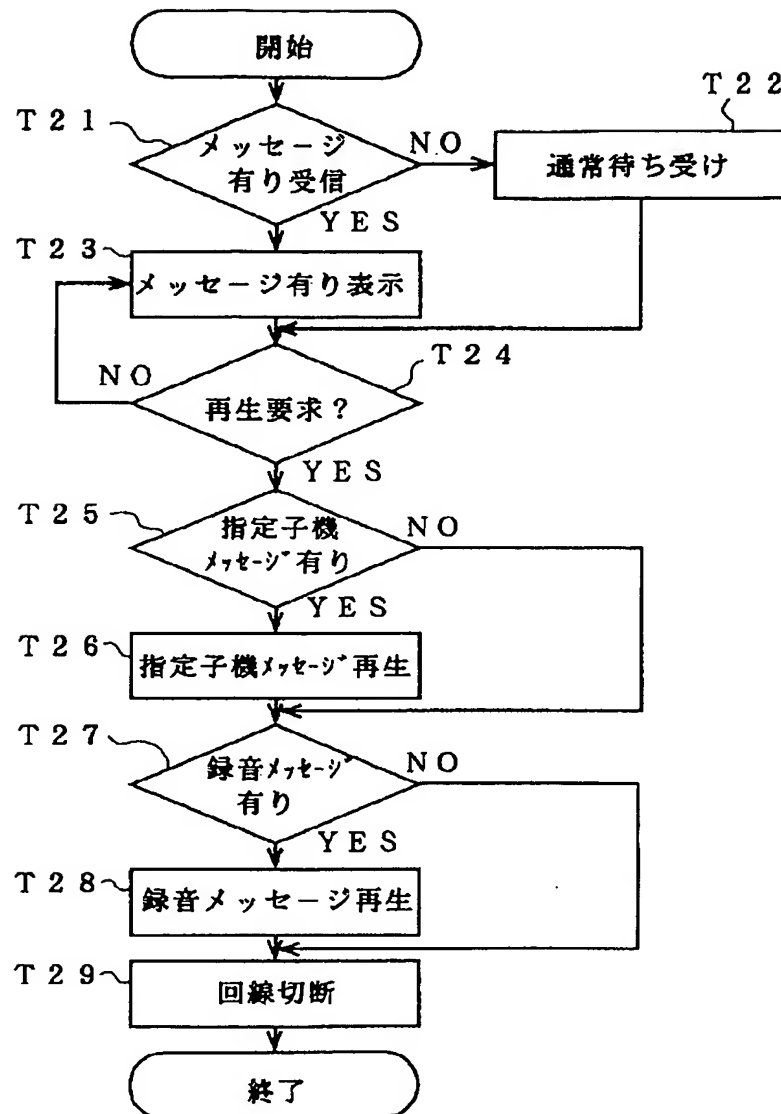
【図 8】



【図 10】



【図 1 1】



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